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General Scientific

SCOPOLAMIN-MORPHIN, SCOPOLAMIN-PANTOPON AND SCOPOLAMIN-NARCOPHIN IN LABOR.

K. E. SCHLOESSINGK, M. D.,
New York

In a recent article on the action of the opium alkaloids, Macht says: "It is a well-known fact that the pharmacological action of opium as such and of its principal constituent, morphine, are in some respects different and that for therapeutic purposes sometimes one is indicated, sometimes the other."¹

Since the dämmerschlaf anesthesia has been introduced in obstetrics, morphin, narcophin and pantopon have been used as opiates in conjunction with scopolamine stable.

It is not difficult to trace the unsatisfactory results reported by some authors of twilight sleep investigations to one of two causes, viz., either wrong technique or the use of wrong drugs.

Many years ago it was the practice to repeat the morphin injection with every scopolamin injection; as a result asphyxiated babies were by no means rare and the strongest opposition to the twilight sleep method arose. This fault in the technique being eliminated, there still remains the second trouble—the administration of wrong drugs. It is a general, but erroneous belief among physicians that hyoscin hydrobromide and scopolamin are the same. Long experience and careful experiments with the great material in the Freiburg Clinic, not only in obstetrical, but in gynecological practice, proved that the clinical results in the use of commercial hyoscin (sometimes called scopolamine) and of true scopolamine are very different, though these two drugs may not differ in quantitative chemical composition.

For instance, although we find that we get about 10% of so-called cases of restlessness with hyoscin injections, we have only to figure with 3% when we use scopolamine stable, which was devised by Prof. Straub in Freiburg.

The greatest difficulty in applying the "Dämmerschlaf" anesthesia was the use of the opiate preparation, on account of its ill effect on the respiratory centre of

the baby. But we need this one injection of an opiate to induce sleep and partial analgesia. The general practitioner is afraid to use opiates on infants, and he is right, and even when we can assume that the selective power of the placenta is eliminating a great part of the toxins which have an effect on the respiratory centre, the dangerous opiate effects are not absolutely excluded.

It is undoubtedly very important to ascertain with which opiate we get the best anesthesia and amnesia and the less depressive effect on the respiratory centre of the baby. As stated above, in connection with the scopolamin, morphin, narcophin and pantopon have been used for a long time. All the reports agree that we get the greatest number of oligopnoic babies when using morphin, so narcophin and pantopon have more and more taken its place. Before going into the details of the chemistry of these two drugs, I want to give a table of the alkaloids so far discovered in opium, the names of their discoverers and the percentage usually present of the more important alkaloids (Sahli):

Morphin	C ₁₇ H ₁₉ NO ₃	(Sertürner 1816)	9-12%
Narcotin	C ₂₀ H ₂₁ NO ₇	(Robiquet 1817)	5-7%
Codein	C ₁₈ H ₂₁ NO ₃	(Robiquet 1832)	0.2-0.8%
Papaverin	C ₂₀ H ₂₁ NO ₄	(Merck 1848)	0.5-1%
Narcein	C ₂₀ H ₂₁ NO ₃	(Pelletier 1832)	0.1-0.4%
Thebain	C ₁₉ H ₂₁ NO ₃	(Pelletier 1835)	0.15-0.5%
Hydrocotarnin	C ₁₂ H ₁₅ NO ₃	(Hesse)	
Codamin	C ₂₀ H ₂₅ NO ₄	(Hesse 1870)	0.002%
Laudanin	C ₂₀ H ₂₅ NO ₄	(Hesse 1870)	0.001%
Laudanidin	C ₂₀ H ₂₅ NO ₄	(Hesse 1894)	
Laudanosin	C ₂₁ H ₂₇ NO ₄	(Hesse 1871)	
Meconidin	C ₂₁ H ₂₅ NO ₄	(Hesse 1870)	
Papaveramin	C ₂₁ H ₂₁ NO ₄	(Hesse 1886)	
Protopin	C ₂₀ H ₁₉ NO ₃	(Hesse 1870)	
Lanthopin	C ₂₀ H ₂₅ NO ₄	(Hesse 1870)	
Cryptopin	C ₂₁ H ₂₅ NO ₄	(Smith 1857)	
Gnoscopin	C ₂₂ H ₂₅ NO ₄	(Smith 1878)	
Oxynarcotin	C ₂₂ H ₂₅ NO ₄	(Smith 1878)	
Xanthalin	C ₁₇ H ₁₉ N ₃ O ₃	(Smith)	
Tritopin	C ₂₁ H ₂₅ N ₃ O ₄	(Kauder 1890)	

Prof. von Schroeder divided these alkaloids into two groups—the morphin and the codein group, the difference being, as experiments on animals show, that the former has a more narcotic and the latter a more stimulating tetanic effect and, in accordance with theory, experience shows that different results can be obtained by using different combinations of the alkaloids of opium. Narcophin produces a pharmacological effect different from that of some of its components and the action of

¹ Journal A. M. A., 1915, No. 18.

morphin is "potentiated" or enhanced by the inactive narcotine. According to Straub, narcophin is a combination of morphin and narcotin salts of meconic acid. Straub claims that narcophin has a less depressive effect on the respiratory centre and has less after-effects on the baby. Schlumpert's and Zweifel's reports fully agree with Straub.

Macht does not agree with Straub's theory of the effect of narcotin. He says, "In my experiments I have found that narcotin is by no means an inert drug, but is quite toxic to the heart, respiration and other physiological functions." The effect of combining morphin and narcotin seems to be rather a true synergism in which the two components play equally important parts.

I personally have used narcophin in Freiburg and in this country in a great many cases with satisfactory results, the Freiburg custom being to use pantopon mostly for the *dämmerschlaf* before surgical operations and narcophin for the *dämmerschlaf* in obstetrical practice.

Professor Sahli, of the University in Berne, introduced pantopon in medicine in 1909. It does not contain any meconic acid or other inert substances, but is soluble in water and contains the total alkaloids of opium as hydrochlorides.

The technique of the scopolamin-pantopon-anæsthesia before surgical operations in Freiburg consists in giving 0.0003 Scopolamin (1/140 grain), 0.02 Pantopon ($\frac{1}{2}$ grain), $2\frac{1}{2}$ hours before, and a second injection of the same dose, $\frac{3}{4}$ of an hour before the operation. If the *dämmerschlaf* is not complete with these two injections another injection of the same dose is given. Only in very cachectic and old patients is the dosage reduced to half the amount.

For the scopolamin-pantopon treatment in labor, the technique is the old Freiburg method, giving only one injection of pantopon ($\frac{1}{2}$ gr.) except in very long or restless or extremely painful cases, where we repeat half the dose of pantopon.

Loewy² and Bergien³ report that they find narcophin depressing and that the effect on the respiration by its narcotic influence is pronounced, but that pantopon on the other hand does not show this effect at all, an observation which if it is correct should be very important in obstetrical practice in respect of the danger to the child.

Kolde⁴ reports 50 cases with scopolamin-pantopon in obstetrics and reaches the conclusion that pantopon is less harmful to the child than morphin. Fedoroff⁵ reaches the same conclusion. Morley⁶ reports 34 cases in which pantopon was used in labor with very good results.

The advantages of pantopon over narcophin are that it produces a more sedative and hypnotic effect on the patient, and is less depressive.

I present a few typical histories:

Mrs. G. F.—Age 20, primi para, admitted to hospital with three to four fingers dilatation, membranes intact, head engaged, cervix thinning, fetal heart 130, frequency of labor pains from 3 to 4 minutes. First injection 4:10 p. m. 0.00045 scopolamine stable (Roche) and 0.02 pantopon; second injection at 5:10 p. m. 0.00015 scopolamin; cervix nearly fully dilated, pains every three to four minutes, strong patient sleeping; two more injections, child born at 7:45, cried at once, complete amnesia.

Mrs. L. M.—age 21, primi para, measurements small, cervix three fingers dilated, pains every three minutes, strong. Fetal heart 142, 11 p. m. first injection, 0.00045 scopolamin stable and 0.02 pantopon; second injection 12:10, 0.00015 scopolamin, partial analgesia; third injection 1:10, pains every three to four minutes, duration half a minute, fetal heart O. K., fully dilated. Baby born at 12:45 a. m., cried at once, separation of the placenta 2:15, total duration of labor 12 hours. Partial amnesia, good analgesia.

Mrs. B. B.—age 24, primi para. First injection: cervix nearly fully dilated, L. O. A. Fetal heart 130. First injection at 5:20 p. m., 0.00045 scopolamin stable and 0.02 pantopon. Four injections of scopolamin. Child delivered 10:55 p. m. Child cried at once, placenta expelled; 1 cc. pituitrin, complete amnesia.

Mrs. P. B.—age 26, primi para; admitted with pains every 10 minutes, $1\frac{1}{2}$ fingers dilatation, membranes ruptured, fetal heart 138, first injection usual dose 11:50 p. m., fetal heart 150, pains every 5 to 7 minutes, duration 1 to 2 minutes; second injection 12:50 a. m., pains every 7 minutes, good and strong; third injection at 2:20, 6 injections, 1 cc. pituitrin; baby born at 10:40 with low forceps and 3 drachms of ether; baby cried at once. Has no knowledge of delivery, remembers having had some slight pains.

Mrs. E. E.—primi para, age 26. First injection at 1:40 p. m., two to three fingers dilatation, pains every three minutes, strong, fetal heart 140. Patient begins to sleep half an hour after first injection, good analgesia. 2:50, second injection; nearly fully dilated, pains regularly every four minutes. Baby slight oligopnoic, cried after two minutes; good amnesia.

The other histories of the scopolamin-pantopon cases show about the same conditions. A quicker dilatation of the cervix is brought about by pantopon and so shortens the first stage of labor that we compensate part of the time lost by the slight prolongation of labor in the second stage.

Of 30 cases I have recently attended 22 had a full amnesia, 6 partial amnesia, and 2 cases were failures, as no amnesia and no analgesia was produced.

I believe that I procured quicker analgesia with pantopon than with narcophin, but that the patients came somewhat later in "*dämmerzustand*." The frequency and strength of pains is not decreased, and, as Zweifel says, "A cessation of pains (when using pantopon) only occurs in cases where we have primary inertia before the injection," and primary inertia is one of the principal contra-indications of the "*dämmerschlaf*" treatment. Zweifel, who made careful studies of scopolamin-morphin, scopolamin-narcophin and scopolamin-pantopon usage in obstetrics, comes to the same conclusion that we get with scopolamin-pantopon a quicker analgesic effect, the sleep is not so heavy, the progress of birth is not disturbed, and the function of the labor pains and abdominal pressure is not decreased.

In my 30 cases I gave in 16 cases 1 cc. of pituitrin when the head was in the perineum, labor was not prolonged. In one case I applied low forceps for posterior position. There were no hemorrhages.

I can confirm Morley's report that "An unfavorable influence upon the force of the pains was not noticed from the treatment with pantopon and scopolamin in combination." Only twice was the pause between the pains somewhat longer after than before the injection (3 to 4 minutes before and about 5 minutes after). The force and duration of the pains themselves remained uninfluenced.

The fact that pantopon is giving a better analgesia than other kinds of morphin preparations will be of

² Loewy: Münchn. Med. Wochenschrift, 1910, No. 46.

³ Bergien: Münchn. Med. Wochenschrift, 1910, No. 46.

⁴ Kolde: Münchn. Med. Wochenschrift, 1911, No. 28, page 1499.

⁵ Fedoroff: Sitzung der St. Petersburger Gesellschaft für Geburtshilfe und Gynäkologie, am 9. Dezember, 1911.

⁶ Morley: The Physician & Surgeon, March, 1912, page 104. (Read before the Clinical Society of the University of Michigan, February 7, 1912.)

interest to those men who still believe that it is of no use to give an anesthesia where we produce an amnesia only—and who cannot understand that a complete amnesia is, in fact, the same as an anesthesia in its effect upon the patient.

PHARMACOPEIAL AND PROPRIETARY REMEDIES IN THEIR MEDICO- LEGAL ASPECTS.*

H. SHERIDAN BAKETEL, A.M., M.D.,

LECTURER IN AND HEAD OF THE DEPARTMENT OF HYGIENE AND
PUBLIC HEALTH IN THE LONG ISLAND COLLEGE HOSPITAL.

Brooklyn, N. Y.

Every activity of man is limited by the bounds of law. It follows, therefore, that medical jurisprudence must play an important role in the practice of medicine. In considering the relationship of law to medicine our thoughts usually revert to such matters as employment and compensation, insanity, civil malpractice, expert testimony, crimes with medical aspects, contractual relations or *res ipsa loquitur*. There is however, the subject of therapeutic agents and their legal aspects, which has an important bearing in medical and legal practice. The physician employs various drugs in the treatment of disease and for knowledge of them he consults the various treatises upon materia medica and therapeutics or the United States Pharmacopœia. Materia medica in itself is the knowledge of the natural history, physical characteristics and chemical properties of drugs (the material used in the treatment of diseases) and many books on pharmacology are known as works on materia medica.

The Pharmacopœia is the official and authoritative list of drugs and their methods of preparation. It is by Act of Congress of the United States "the standard, as determined by its tests, for the strength, quality and purity of drugs." The first United States Pharmacopœia was published in Boston in 1820, and there have been eight revisions since that time.

The Pharmacopœial convention is composed of delegates from all incorporated medical schools and schools of pharmacy, the state medical and pharmaceutical societies of each state or commonwealth, the American Medical and Pharmaceutical Associations, and the American Chemical Society, and delegates from the United States Army, United States Navy and United States Public Health Service. It meets once in ten years in the first year of the decade. The actual work of revision of this volume is performed by a committee on revision, which is authorized to admit into the Pharmacopœia "any product of nature of known origin; also any synthetic product of definite composition, which is in common use by the medical profession, the identity, purity and strength of which can be determined." Nothing of secret composition or more of manufacture can be introduced; nor anything which is controlled by patent rights or unlimited proprietary. Materia medica on the other hand deals with all drugs, including the many which are extra-pharmacopœial. This is in contradistinction to the Pharmacopœia which touches upon only those drugs which by law are "official."

In the practice of medicine the physician is in addition brought into contact with two protected classes of drugs, the so-called proprietary drugs and patent medicines, although his connection with the latter is more in the line of advising against their use by those who see fit to treat themselves. Proprietary remedial agents

are those which are sold on physicians' prescriptions only and are legitimate in nature and in the method of marketing. They are protected by the reputation of the manufacturer and generally by trade mark. In Germany this class of goods may be further protected by process patent, but our laws grant the manufacturer no such protection. The majority of the proprietaries are honestly made from formulæ which are made known to the profession, and, as they are products of long established and favorably known houses having a scientific and commercial reputation to sustain, they are quite likely to establish a certain standard and steadfastly maintain it. They use the best of ingredients and by carefully combining them, are able to dispense ill tasting drugs in a palatable form, without detracting from the efficiency or potency of the basic elements. Naturally they are cheaper in price than when compounded by the average druggist. Even when not protected by a process patent these remedies soon establish a name for themselves as effective therapeutic weapons when properly administered, and the manufacturer, being able to produce them in maximum quantity at a minimum price, is able to make a profit on the product of his labor and to maintain control in large degree of the sale, so long as he scrupulously adheres to the original standard of excellence.

Trade marking a name gives the proprietor perpetual control of the product and in some ways this has an advantage over the patent which expires after seventeen years of life. The coined trade mark must be a name, to some degree arbitrarily chosen, and cannot indicate therapeutic properties or uses or the geographical source of the drug. Neither can the name be so similar to another already in use as to cause confusion in the mind of the possible user, even though the properties and uses be widely divergent. A disadvantage of the trade mark, in addition to the rights in perpetuity which it confers, is that the same product may be trade marked under many different names, so that under the usual interpretation of the pharmacy laws, the druggist is compelled to keep in stock several articles similar, and possibly identical in composition and therapeutic usage and differing only in name. The trade mark system, therefore, imposes a burden on the pharmacist and may give rise and often does to the misleading of the physician.

The majority of the patent medicines are either meretricious or are incapable of accomplishing the objects for which they are alleged to be intended, as advertised, or are vicious in containing opiates or an excess of alcohol. In very many instances they are devoid of active ingredients, are sold in department stores and groceries and over the counter to laymen entirely ignorant of disease and the proper treatment thereof. Many of them lead to drug and alcoholic addictions, as they rely on narcotics and alcohol for their effect. These alleged "medicines" are dependent on advertising of a peculiar and low grade type for their existence and that they leave widespread misery in their trail has been frequently demonstrated.

The domain of medical jurisprudence is entered by the pharmacopœial products when the prescriber departs from official standards by overstepping the bounds of accepted dosage. In this connection the physician is protected by the stipulation in the pharmacopœia that a certain dosage as fixed for an adult is approximate, but not a maximum or minimum dose, and he can exceed this if he deems it expedient. He can only be held for injudicious administration of excessive quantities. It is a well-known maxim in law that a physi-

* Read at the third annual meeting of the American Association of Medical Jurisprudence, May, 1915.

cian in the practice of his profession must exercise due diligence and reasonable judgment and must possess that amount of professional knowledge usual in the community in which he is located. To show the medical man's latitude in determining the dosage, it may be observed that the pharmacopœia gives four grains as the average dose of extract of ergot, while Wilcox, one of the best known therapists in the country in his book on materia medica, although quoting the official dose, says from five to fifteen grains can be prescribed.

Proprietary remedies sometimes get into the courts on account of change in methods of manufacture without suitable warning to the medical profession. A dose originally safe might, by a change in the strength of the drug, become excessive on the one hand or valueless and inert on the other, when its amount in a certain dosage had been changed. Occasionally proprietaries are causes of legal action from the appropriation of coined names, which are not exclusive but inclusive of the rights of others, as exemplified by the adrenalin and tongaline cases.

In patent medicines there is no control over a change in formula. New ingredients may be introduced and old ones removed while the name and literature may be continued as before without reservation. This was especially observable after the passage of the Boylan Law in New York and the Federal Harrison antinarcotic law. A most vicious feature of patents lies in the exemption of them from regulation in the state and federal laws, so that the production of drug habits is not only not prevented but actually favored. A joker is always to be found in every antinarcotic law and no matter how astute the legislative watch dogs are when financial legislation is under consideration, they always suffer from the profoundest form of strabismus and even optic atrophy when this kind of legislation is under consideration so that a joker invariably looms up in a patent medicine bill. It may not be amiss to note the first part of Section 6 of the Harrison law, enacted by the Congress of the United States, December 17, 1914. It reads "That the provisions of this act shall not be construed to apply to the sale, distribution, giving away, dispensing, or possession of preparations and remedies which do not contain more than 2 grains of opium or more than $\frac{1}{4}$ grain morphine or more than $\frac{1}{8}$ grain heroine, or more than 1 grain of codeine or any salt or any derivative of any of them in one fluid ounce; or if a solid or semi-solid preparation in one avoirdupois ounce." This leads to the observation that we can no more expect a law-making body to pass legislation actually hostile to patent medicines than to labor unions. Patent medicines are protected by grants of patents, thus having a semblance of authority, but their sale and distribution are carried on without control and in defiance of all legislation and all efforts toward social benefit and uplifting.

Another phase of this subject deals with the national pure food and drugs act. This has to do with the adulteration and misbranding of remedies, and hundreds of judgments have been rendered in the Federal courts against those found guilty of this offense. Among the tablets which have been adulterated are such pharmacopœial products as caffeine, calomel, aloin, strychnin, nuxvomica, phenacetin, quinin and salol. Some of these drugs are adulterated with harmless milk sugar, but often powerful heart depressants are introduced, so as to give "effect" to the drug. As the Federal authorities have taken up the prosecution of these cases they rarely come into the professional work of the physician.

Medical jurisprudence occasionally concerns itself with those cases dealing with an infringement of a patent based on priority. Hearings are held at which testimony is taken and the matter is referred to the Commissioner of Patents for final decision. The cases seldom get into the courts except on appeal. Another matter of litigation affects those products, protected by patent processes abroad, and trade marked in the United States, which are purchased by unlicensed persons and imported into this country in defiance of the rights of the American licensees. A case in question was recently decided in the United States District Court in Detroit: A. C. Smith, of Windsor, Canada, was the defendant in three actions heard before Judge Tuttle, complainants being the *Bayer Company, Inc.*, as owners of the United States aspirin patent; *Merck & Co.*, as owners of the veronal patent, and the *Farbwerke-Hoechst Company* as owners of the salvarsan patent. The defendant had been sued by the complainants for bringing into this country products for which they had the exclusive American selling rights. At the close of the testimony and arguments Judge Tuttle rendered his decision from the bench sustaining the patents, ordering accountings, and putting the defendant under permanent injunction.

The effect of this decision will doubtless be to emphasize the care physicians and druggists should exercise in the purchase of their drugs and will likely militate against future infringements.

Medical jurisprudence is especially interested in the evils of drug substitution, for pharmacopœial and proprietary products alike suffer in this connection. Despite the fact that violation of the trade mark law in New York is a felony, well known pharmacists are authority for the statement that substitution is a very present evil. Dean William C. Alpers, of the Cleveland College of Pharmacy, in a recent address stated that "a sample of spurious protargol showed 4% of silver and contained more than 60% of insoluble matter while the genuine contains 8.3% of silver and is entirely soluble in water." Prof. Otto Raubenheimer, of the College of Jersey City, in the *Journal of the American Pharmaceutical Association*, January, 1914, says: "Aristol has been adulterated with brickdust, salicylic acid has been sold as aspirin, and a mixture of magnesium and sodium sulphate as pyramidon."

Substitution and adulteration often travel hand in hand and the line of demarcation is difficult of determination. Playing a leading part with them is the counterfeit label. Peripatetic drug peddlers, having no office but a well filled satchel, are largely responsible for this trio of evils. In this connection Raubenheimer, in the article above quoted, continues: "Adulteration has even gone so far as to imitate the labels of the genuine product, so as to require an expert to tell the difference in the outside appearance between the imitation and the genuine. It is also well known that chemicals supplied by the irresponsible peddler are generally *short weight*. A large quantity of tablets are sold by peddlers which are made from adulterated chemicals. It has even come to my knowledge that vials, bearing imitation labels of salvarsan, instead of containing this valuable remedy, were filled with oxide of iron to give it the characteristic color of the genuine article, and this fraud was not discovered until the peddler selling the counterfeit article had left town to continue his criminal activities in another community. The dangerous practice of purchasing supplies from peddlers is one of the most serious menaces to the health and life of every community. How dangerous this practice is has

been well demonstrated in a recent case, when a substitute for a chemical which was intended as an eye lotion resulted in the loss of the patient's eye, and in the recovery of heavy damages from the substituting druggist."

The New York Evening Sun, October 10, 1913, commenting editorially on the case of State vs. Sirul for drug substitution, in which the defendant was sentenced to three months' imprisonment, adds: "No less than 96,000 counterfeit labels were found in the possession of one of the other prisoners, a circumstance which will give an idea of the extent of this pernicious traffic. Let us hope that the example set in this instance will be followed in future, for the courts as a rule are far too lenient in dealing with these inhuman rascals who make their living by preying on the sick and suffering."

It will thus be seen that in the consideration of pharmacopoeial and proprietary products medical jurisprudence is keenly interested, and it is earnestly to be hoped that a better understanding of the evils that beset the physician and pharmacist, on the part of the medical jurist, will aid in effecting the passage of such laws as will tend to reduce these evils to a minimum.

54 Sidney Place.

THE NEED OF TRAINED SANITARY EXPERTS.

WM. H. WELCH, M. D.

PROFESSOR OF PATHOLOGY IN JOHNS HOPKINS MEDICAL SCHOOL,
Baltimore.

Of all the departments of a city, that of health is one where partisan politics has the least right to be. It is the one where those who are put in charge of the department and its divisions should receive their appointment on the basis of special qualifications. Our medical schools do not supply this training. We should strive to have in medical schools a department for training men to serve subsequently as health officers. We have not in this country adequate facilities for training men as public health officers. On the one hand, the Health Board and those who have appointed them do not know where to look in the community, as a rule, for such trained sanitarians, and on the other hand, what incentive is there for a young man to fit himself for this career in sanitary work unless he has a chance of appointment to the Health Department. We are just at this moment in a vicious circle in that regard, but we are counting upon improvements in these conditions. The reason that in England the sanitary organization is so effectual is because it is in the hands of those specially trained men, sanitarians. No one can possibly hold the health office unless he has the diploma of public health; that is, in addition to medical training, he has a special training in sanitary science.

The Boards of Health in our cities should establish bureaus of vital statistics and bureaus of infectious diseases, with men specially trained in treatment of infectious diseases. Then, we should have the proper co-ordination in that regard with bureaus of sanitary disinfection, protection of children in the schools, and the treatment of tuberculosis. We have the beginnings of these, but what we need is a further development of organization, with a larger force of sanitary experts, with the security of tenure in their offices, to make thoroughly effective the work of the Health Department.

In this connection, I would say a word as to the control of the purity of the milk. If the law of a city is not adequate to enable it to do it, then let such a law be passed by the Legislature. Before the milk question

can be regulated, one must go back to the sources of supply, to the dairy; and consider the transportation and conditions on the farm; and until the people have a force of inspectors under the Health Department who have control over the conditions under which the milk is purchased, in the dairies and the farms, it is impossible to expect to secure pure milk. Milk is one of the most important considerations in municipal sanitation, and ranks side by side with the water supply, impurity of which is responsible undoubtedly for so much typhoid fever.

It is an urgent sanitary need that a city should have better control of the milk it drinks, and the Baltimore Health Department is alive to that. We should have better control of the milk supply of Baltimore, so that we can have some assurance of the purity of the milk. It is not only responsible for the production of typhoid, but in a greater degree for the large infant mortality in summer.

The medical inspection of schools in Baltimore, for example, is a matter in which we are very much interested at present. We have the beginning only of a system, five medical school inspectors and five nurses. That of course, is entirely inadequate. The Board of Education is now considering this, and one suggestion is the establishment of a department of hygiene in connection with the Board of Education, and I think it is an admirable suggestion, but the establishing of such a department with a great sanitarian at its head, and with consideration of all conditions relating to sanitation in schools and the health of the children in the schools, would be a step forward.

Stomach Experiments.

C. H. Neilson and S. T. Lipsitz, St. Louis, detail their experiments on the effects of various agencies: exercise, massage and rest; the influence of posture; the influence of temperature; and the influence of the reaction of the emptying of the stomach. From these experiments on healthy young men, they come to the following conclusions: "1. Water is emptied from the stomach somewhat more rapidly during exercise than when the subject remains quiet. 2. Posture seems to have a direct influence on the emptying power of the stomach. Lying on the right side causes a more rapid evacuation than in any other position, and lying on the left side has the opposite effect. Lying on the back causes a somewhat more rapid emptying than in the upright position. 3. At 45 C. the water leaves the stomach somewhat more rapidly than at 10 C. 4. Normal acidity causes a more rapid emptying than hyperacidity produced artificially by adding hydrochloric acid to the stomach contents. Artificial alkalinity produced by adding sodium bicarbonate to the stomach contents causes the stomach to empty itself slightly less rapidly than under normal conditions, but more so than during hyperacidity. 5. All of these factors may have considerable significance in their bearing on clinical experience."—(J. A. M. A.)

Operation for adenoma of the prostate (so-called prostatic hypertrophy) should not be long delayed if the patient is a "good surgical risk," even though obstruction is not marked nor continuous, for sometimes these adenomata conceal small areas of carcinoma, unrecognizable except by the microscope. Removed thus early, the patient is usually cured; left to grow into the capsule and surrounding tissues, the condition is usually hopeless.—*American Journal of Surgery.*

CLEFT PALATE; CRUSH INJURY OF THE HAND.

From the Surgical Clinic of

WILLIAM FRANCIS CAMPBELL, A.B., M.D., F.A.C.S.

PROFESSOR OF SURGERY, LONG ISLAND COLLEGE HOSPITAL.

Brooklyn, New York.

Cleft Palate.

History: Patient, female, four weeks old, enters hospital because of a congenital gap in the palate. The mother states that it is impossible for the child to suckle and that the food regurgitates through the nose.

Examination: As you examine the interior of the mouth you note that there is a median cleft involving

tends beyond this point and involves the alveolar margin, it leaves the median line and follows the suture line of the intermaxillary bone, the anterior extremity of the cleft appearing between the lateral incisor and canine teeth (Fig. III). If the cleft involves only one side of the intermaxillary bones, single hare-lip is usually present; if it involves both sides of the intermaxillary bones, double hare-lip is produced and the intermaxillary bones are attached to the tip of the nose.

Remember, every form of cleft palate can exist alone or in conjunction with hare-lip.

It is obvious that this condition is a serious menace to the nutrition of the infant since it is impossible for the child to suckle or satisfactorily swallow the food introduced into the mouth. The food often regurgitates

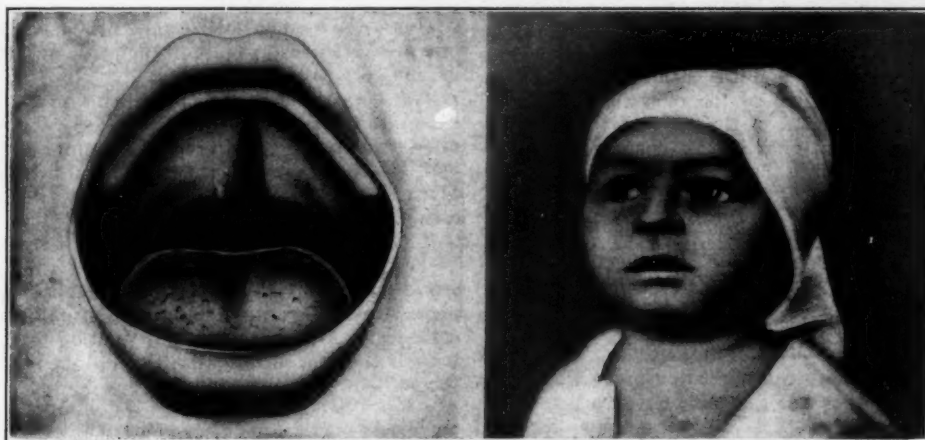


Fig. I. Incomplete cleft palate without hare-lip operated at fourth week.

both the soft and hard palates as far as the anterior palatine canal (Fig. I). The alveolar margin is not involved in this patient and consequently there is no accompanying hare-lip. The child is not well nourished because it cannot satisfactorily swallow the food when introduced into the mouth—a part of the food is frequently regurgitated through the nose. Thus it will be observed that this deformity is a serious menace to the child's nutrition and subsequent development.

Comment: Cleft palate is a congenital gap in the palate due to an arrest of development, and can be understood only by an intelligent appreciation of the changes which take place in the formation of the nasal and buccal cavities during fetal life.

Recall the fact that in early fetal life the nasal and buccal cavities are one; the formation of a partition between these two cavities is only accomplished by the development of the palate, which is formed by the palatal plates of the superior maxillary bones, and the palate bones growing horizontally inward on each side, meeting in the median line and thus closing the fetal gap between the two cavities.

Again, note that the fusing of the palatal plates does not form a complete partition; there still remains a V-shaped interval in front, the apex of which is at the anterior palatine canal, the sides extending to the interval between the lateral incisor and canine teeth (Fig. II). This interval is filled by the intermaxillary bones which are developed from the frontonasal process forming the septum of the nose.

With these facts in mind it is readily seen that an arrest of development may produce a median gap which varies in degree from a notch in the soft palate to a complete gap involving both the soft and hard palates as far as the anterior palatine canal. If the cleft ex-

through the nose and endangers respiration. Children with cleft palate should be fed in the upright position so that the food will gravitate directly into the pharynx. Later, articulation and phonation are seriously compromised—the defective nasopharyngeal wall permits the air current to escape through the nose and makes the distinct articulation of consonants impossible. *The tools of speech must be normal in order to have correct speech.* Not only this, but unless the mouth and nasal cavities are separated early in life normal physiological



Fig. II. Note V-shaped interval filled by the intermaxillary bone. (A, median articulation; B, intermaxillary bone.)

function is impossible. Hence, normal development is seriously compromised, vital capacity is impaired, the physiognomy is altered, and the individual is physically and intellectually a defective.

Treatment: As Lane observes, "the treatment of cleft palate has been a matter of creed and tradition and has not been arrived at in any reasonable manner." Fortunately, surgeons are beginning to appreciate that the old dictum of delay has nothing to commend it. It is fallacious in premise and conclusion. If the normal development of the nasopharynx and the surrounding structures depends upon normal physiology, it is obvious that the nose and mouth cavities should be separated as early as possible. The child cannot develop so long as its supply of air and food is deficient.

The proper time to operate for cleft palate is as soon after birth as possible.

The plasticity of the new-born tissues, their capac-



Fig. III. Complete cleft involving hard and soft palates.

ity for repair, the trifling hemorrhage, the slight risk to life, the possibility of obtaining a broad, well vascularized flap before the teeth have begun to encroach upon the mucous membrane combine to make early infancy an opportune time for repairing this defect.

Operation: It is obvious that in the closure of any particular cleft the surgeon must be largely guided by his experience. In this patient we are going to close the cleft by sliding muco-periosteal flaps.

We first freshen up the margins of the cleft by removing a strip of mucous membrane from each side; then incisions are made through the mucous membrane and periosteum of the hard palate close to the alveolar process.

We are particularly careful not to carry these incisions so far posteriorly as to divide the palatine artery as it emerges from the posterior palatine foramen.

Next, by periosteal elevators we separate the mucous membrane and periosteum from the hard palate, and we find that the flaps thus freed meet in the median line without tension. We now introduce the required number of interrupted silk sutures and as these sutures are tied the cleft is completely closed (Fig. IV).

After-Treatment: For the first twenty-four hours give the patient only sterile water. Do not give milk until the injured mucosa is sealed up by the products of repair, since milk is a good medium for bacteria, and the mouth is difficult to cleanse.

Keep the child quiet and prevent crying by administering small doses of paregoric.

Milk diet may be given on the second day. Always follow the feeding with sterile water to wash away the milk remnants.

No mechanical cleansing of the mouth is practical in small children.

The sutures should be removed on the seventh day.

Crush Injury of the Hand.

History: Patient, male, twelve years old, enters hospital because of a crush injury of the right hand sustained by being caught in a machine.

Comment: The first indication in all accidents is to control hemorrhage and combat shock. In tissues that have been crushed by machinery there is rarely much bleeding, but there is always much shock. Note the condition of this patient—the tissues are mangled but there is no active hemorrhage. Note the pallor of the face, the small rapid pulse, the subnormal temperature,—this is a picture of shock. In other words it is a condition of vital exhaustion brought about by the sudden trauma and the futile effort of the brain to protect the injured part. In its supreme effort to protect, the brain has exhausted its vital capital: Hence the phenomena which you observe—the vasomotor paralysis, the abnormally low blood pressure. Here then is your indication for treatment. This patient needs not the stimulation of alcohol or strychnine (as well whip a tired horse) he needs that which will conserve the little vital capital remaining. Morphine is the great conservator of the vital capital, and this drug is the sheet anchor in all conditions of traumatic shock.

What to Avoid: *Avoid the use of disinfecting agents such as carbolic acid*—remember that this antiseptic agent should find no place especially in the surgery of childhood. *The danger of carbolic gangrene* when carbolic solutions are applied to the digits must not be forgotten.

Do not attempt to disinfect wounds by scrubbing with green soap. Such methods do more harm to the tissues than to the bacteria which lie hidden in the lymph spaces.

Guard against tetanus by prophylactic injections of antitetanic serum in wounds that have come in contact with soil or gunpowder.

Treatment: Wounds of the hand are among the most important lesions which claim the attention of the surgeon. The hand is naturally predisposed to wounds of all kinds, especially those resulting from machinery accidents, and the explosion of fire-arms where the resultant condition is not merely a wound but a multiplicity of wounds, involving to a greater or less extent

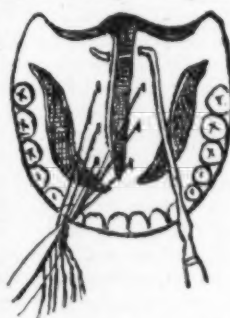


Fig. IV. Showing position of mucoperiosteal flaps and introduction of sutures.

vessels, tendons, muscles, and bone. In the presence of such injuries it is impossible to be guided by hard and fast rules of procedure—only the general principles of treatment can be suggested. Experience and judgment must modify them to suit the individual case.

This rule, however, applies to all cases. *These injuries should be approached in a spirit of conservatism with a determination to sacrifice nothing that can be saved.*

The inestimable value of a hand, even a partial hand, is the strongest appeal to conservative surgery.

Primary amputations of the hand should be classed among the rarest operations in the domain of surgery.

Nature is a better adjunct than the knife in the treatment of these conditions. See what the recuperative forces of nature will do to preserve and restore the wounded parts. Remember that the thumb opposes all the other fingers, hence its value in the role of prehension is vital.

If the thumb be removed the hand is reduced to a mere hook. A single finger and a thumb are worth more than any artificial substitute.

Having anesthetized the patient, we first saturate the wound with iodine solution—half strength, and proceed to remove with thumb forceps the debris, splinters, or loose bone. We next make a careful study of the anatomy of the wound. We endeavor to find out what tendons and nerves are involved and what disposition of the soft parts will give the most useful hand. Surgery should be constructive as well as conservative.

We shall cut nothing away that can be saved. We prefer to leave too much rather than too little; and, above all, we shall arrive at no hasty conclusion in reference to amputation. *When in doubt, don't amputate*, see what nature will do first; let amputation be a secondary consideration. It is wonderful how tissues recuperate under conservative treatment and useful function restored.

Having attended to the vessels, tendons, and nerves, we shall make such closure of the wound as is expedient with safety, being sure to leave ample room for drainage. We must remember that these wounds potentially are infected wounds—closing them invites disaster.

As an effective after-treatment we shall place this hand in a continuous bath of saline solution at a temperature of 110 degrees—the continuous heat and admirable drainage which the continuous bath affords make it an ideal therapeutic measure for the preservation and restoration of lacerated tissues.

After all dangers of infection have passed we shall direct our efforts toward the restoration of the highest degree of function.

394 Clinton Avenue.

Roentgen-Ray Epithelioma.

Robert Abbe, New York, says that during the two years since he first called up the subject at the British Medical Association, he has been more deeply impressed with the importance of radium in the cure of Roentgen-ray cancer, as he has treated more cases. Logically, it is clear that if the senile keratoses of the face and hands can be cured by radium, then the early Roentgen-ray growths of the same type ought to do equally well. It is only in the advanced stage of the skin cancer from the rays that radium is not beneficial. His first case so treated was in 1903, and one application of radium cured the epithelioma. Three years ago he relieved a very bad case, though the patient was too saturated with the cancerous growth to survive more than a few months. Other examples are given. The great advantage in the radium treatment, as experienced by a physician thus treated and who has used the method himself extensively, is that it can be applied in many situations not accessible to freezing, and secondarily, its relative freedom from pain. No cases, Abbe says, have presented themselves to him of chronic dermal Roentgen-ray disease in the early stages of thick patches, cracked ulcerated and painful, or of the epithelial growths of basal-cell type on the back of the left hand of those who have in past years used that hand which have not yielded to radium therapy.—(J. A. M. A.)

STERILITY.*

ALBERT M. JUDD, M.D., F.A.C.S.

GYNECOLOGIST TO THE KINGS COUNTY, JEWISH AND LONG ISLAND COLLEGE HOSPITALS; CONSULTING GYNECOLOGIST TO ST. JOSEPH'S (FAR ROCKAWAY) HOSPITAL, THE SWEDISH HOSPITAL AND THE EAST NEW YORK DISPENSARY; CONSULTING OBSTETRICIAN TO CONEY ISLAND HOSPITAL, EASTERN DISTRICT HOSPITAL AND DISPENSARY.

Brooklyn, New York.

Our first and most interesting case to-day is one presenting the symptom spoken of as sterility. Douglas' statement that sterility is hardly functional and must, therefore, be considered not as a disease, but as a symptom, is axiomatic.

In studying this symptom it is essential to consider it from the standpoint of the multiple lesions that may cause it. There is scarcely a gynecological disease that may not have relation, direct or remote, with functional disorders.

This young woman is 32 years of age, has been married for three years, a Catholic, and both she and her husband are very anxious that she should become pregnant. Her menstrual history began at 18, has been perfectly regular, flowing three days, moderate in amount, with what she calls "terrible cramps" on the first day of the flow. She is a strong, healthy individual, weighing 150 pounds, has several sisters who are married, all of whom have had children and is herself one of a family of eight children.

Physical examination shows a normal introitus, a normal vagina with a small conical cervix, with a very small external os, the cervix lying in the axis of the vagina, acutely anteфлекed on the body of the uterus. The body and fundus are larger than normal, particularly from side to side, reminding one of the developmental deformity found in cases of uterus didelphus. Uteri which have the physical characteristics of this one, often have one cervical canal and two separate cavities, or the defect may have stopped short of this and they have a partition projecting downward from the fundus.

Proceeding further in our examination of this patient we find on introducing a uterine sound that we have in this case such a partition projecting from the fundus with a large cavity, that is, larger than normal, and the cornu being considerably deeper than the cavity at its central location.

The treatment advised in a case of this character will be directed towards enlarging the canal and external os and a straightening of the cervix in such a manner as to bring its axis at right angles to the vaginal axis.

The favorite procedure in these cases has been the Dudley operation on the posterior lip of the cervix and the Dudley-Reynolds on the anterior wall, but my choice, from experience and results, is the use of the solid glass stem pessary which is held in by silver wire, using two cross sutures or one bent upon itself, the sutures to be held laterally to the cervix by means of buttons or lead plates.

A very large proportion of cases following this procedure have become impregnated. The stem is left in during the succeeding two or three menstrual periods. When I speak of their becoming impregnated I, of course, mean the simple cases of anteфлекion without any further complications.

Sterility itself embraces two persons, the male and the female. In reckoning upon the percentage of female sterility one must also reckon with the fact of

* Gynecological Clinic given at the Kings County Hospital, May 21, 1915.

male sterility. The estimates regarding the male range from 7 to 40 per cent. in which he is at fault. One really has no right to venture an opinion upon the sterility of a woman who comes to him or to do any procedure for the relief of such symptom without having first had the husband subjected to an examination by a specialist in genito-urinary diseases. In the case of one woman whom I have seen, the sterility is due to an orchitis complicating a typhoid fever in the husband at the age of 20. In another case seen recently no spermatozoa could be found in the semen, but they could be found by puncturing the epididymis. This husband is to be submitted by a genito-urinary surgeon to some form of plastic surgery. In this case we stood ready to do work seemingly indicated upon the wife.

Sterility may be absolute or due to congenital defects or mutilating surgical operations, or it may be relative, the condition being at times only temporary, disappearing upon improvement of the general health or upon the removal of some obstruction or disease in the genital tract.

Contrary to common belief, sexual enjoyment in no way influences conception. Pregnancy has followed rape and sexual intercourse while the female was unconscious. Repugnance to sexual relations has not proven a deterrent. To see women who never enjoy the sexual act, with large families is not uncommon. Too frequent intercourse is a frequent cause of sterility, as we see in prostitutes. In other cases there is no fault in the wife or husband. Each may be capable of procreation, but a certain incompatibility prevents their propagating together. This has been repeatedly demonstrated by breeders of animals. In instances the male, known as a sure "getter", fails to impregnate the female after repeated trials, while the same female promptly conceives from another male of the same species. In the human family I have seen an instance of this sort in my own work, and we have an historical instance in that of Napoleon and Josephine.

The mechanism of conception, so far as we know, is as follows:—The Graafian follicles occupy the cortical substance of the ovary, each follicle containing a fluid called liquor folliculi and the ovum. As it matures, the follicle gradually becomes distended with fluid, appears beneath the surface, ruptures and discharges its contents. The ovum is washed into the pelvic cavity and, under normal conditions, reaches the fallopian tube and passes along it toward the uterus. If at this time, under normal conditions, coitus takes place and seminal fluid containing virile spermatozoa is deposited in the upper part of the vagina, they, of their own power of movement, enter the uterus and work their way upward toward the descending ovum. The exact meeting place is not known.

There are two necessary conditions for normal conception, one that the ovum become fertilized, and the other that the fertilized ovum shall find in the endometrium a place which is favorable to its further development and there become imbedded.

As indicated in the foregoing, sterile marriage may result from absence of virile spermatozoa, faulty general nutrition in the woman, defective reproductive organs in the woman and intermediate causes. The most frequent cause of the absence of virile spermatozoa is gonorrhea. The great majority of cases coming to the author for sterility are the women who have in a short space of time after marriage become obese. He has seen so many of these cases that he has classified them by themselves under the heading of acute post-marital obesity with sterility. The history of this class of cases

is as follows: A girl, seemingly perfectly healthy, weighing from 90 to 120 pounds, will marry. Shortly after marriage she begins to take on flesh and may, at the end of a year, weigh anywhere from 150 to 200 pounds; attention to her hygiene, exercise and faulty nutrition, with the resultant loss of a good proportion of this increase in weight, has often resulted in pregnancy. Concomitant with such a patient's increase in weight, her menstrual history undergoes a radical change; whereas before marriage she may have been perfectly regular and normal as to her periods, as she increases in weight the interval between the periods becomes prolonged and the amount of the flow and the length of time of the flow are diminished. In some cases the interval has been as long as five months.

Defects in the reproductive organs of the woman may be congenital or acquired. Among the congenital defects are rudimentary organs or atresia somewhere in the genital tract. A rudimentary uterus is sometimes improved by the introduction and wearing for a long period of a stem pessary. The atresia may be operable or it may be inoperable. We also have congenital displacements, congenital elongations of the cervix. A double uterus may produce sterility, although the writer has seen several cases where the patient has become impregnated at different times on the two sides of a double uterus and has carried the pregnancy to full term and delivered herself normally.

Among the acquired defects are the mutilating operations of surgery, atrophy of the uterus which sometimes follows curettage, occlusion of the tubes due to inflammatory disorders, chronic inflammatory conditions in the pelvis affecting the ovaries or the tubes, tumors of the ovaries, cellulitis, endocervicitis, vaginitis by producing a hyper-acid secretion that is hostile to spermatozoa, often relieved by the use of suppositories containing bicarbonate of soda just previous to intercourse, fistulae between the vagina and neighboring organs.

The prognosis requires, first, a careful conjoined examination of all the reproductive organs of both the husband and wife, as well as the systemic condition.

Whatever procedure undertaken for the relief of the condition seemingly causing the sterility, even though you should procure through such procedure an open genital tract and a seemingly normal state of the reproductive organs, the prognosis should be extremely guarded. You can simply state, when doing conservative pelvic work where both the husband and wife feel that their wishes justify operative procedures, that such work frequently has been known to be followed by impregnation. Such conservative surgery has been strongly advocated by many prominent gynecologists, but should only be done at the earnest solicitation of both the husband and wife when absolute findings cannot be stated without opening the abdomen to remove the supposed impediments to conception.

375 Grand Ave.

A form of nasal abnormality, which is a prolific source of catarrhal middle-ear deafness, is the bony spur situated far back in the nasal cavity. This spur appears as a pointed or conical projection, opposite the posterior part of the inferior turbinate; frequently it comes into view only during the ischemic effect of an application of cocain and adrenalin.

Simple inadequacy of the thyroid is rarely observed clinically, but is almost invariably associated with symptoms of thyroid excess.

EUSTACHIAN SALPINGITIS.

HAROLD HAYS, M.D., F.A.C.S.,
New York.

One seldom realizes that the Eustachian tube is closed except during the act of swallowing and that its lumen, when it is patent, will only admit of a bougie of the diameter of a pin. The palatal portion is surrounded by soft tissues while the aural portion is a bony canal which in the dried specimen admits only a small-sized probe. The Eustachian tube is the gate-way to the middle ear through which the proper amount of air automatically flows—air which gives the middle ear that proper tonicity so necessary to hearing. Is it any wonder then that any inflammatory condition of this little tube will eventually lead to serious results?

Salpingitis of the Eustachian tube is either acute, sub-acute or chronic and the degree of permanent impairment to the ear will depend upon the degree of inflammation and the length of time it continues. Except where there is an acute infection of the middle ear cavity (which infection originally comes through the tube from the throat resulting in suppuration) almost all cases of progressive deafness result from a Eustachian salpingitis.

In order to understand how such a deafness occurs as a result of closure of the tube, one must appreciate the mechanism of the middle ear. I have repeatedly stated that such closure results in deafness solely because the normal mechanism of the foot-plate of the stapes and the ligament of the oval window, are interfered with. This almost invariably happens when the tube is closed off and a negative air pressure within the middle ear takes place.

Acute Salpingitis is evidenced by a pain in the throat, a thickened feeling in the region of the tubal orifice, and a dull feeling in the ear as if wax were stuffing up the canal. The patient often comes to the specialist stating that his canal is stopped up. Examination reveals the fact that no wax is present but that the tube is closed. There may be an edematous condition of the Eustachian orifice. In the early stages, instillation of drops of adrenalin and Dobell's solution through the nose will be sufficient. But oftentimes it is necessary to dilate the tube with suitable bougies. One proper treatment will frequently be all that is necessary.

Sub-acute salpingitis is mainly evidenced by a moderate amount of deafness and a mild tinnitus or buzzing sound in the ear. It usually follows the acute condition. These cases are very stubborn and may take months to cure but it is absolutely necessary for the patient to have proper treatment or else he runs the risk of a permanent deafness. Drops of argyrol will keep the nasopharynx clean and perhaps relieve the slight inflammation present. The tubes must be treated by proper dilatation at least twice a week. *Mild* massage may be instituted after the dilatation.

Chronic salpingitis is the type of inflammation most frequently met. The paramount symptom is either deafness or tinnitus. I have frequently dwelt upon the importance of proper treatment of a stenosis of the tube in cases of progressive deafness. In such cases more relief may be obtained from proper attention to the tube than treatment of the ear itself.

11 West 81st Street.

Ten per cent. of all tuberculous patients have tubercular infection of the kidneys. Pollack of Vienna found among 285 children from families containing patients with open tuberculosis, 275 with a positive tuberculous reaction.

CONQUERING OBSESSING FEARS.

SHELDON LEAVITT, M.D.,
Chicago.

He was a man on whose spirits and physique hard work plus drink had left its visible impress. By degrees he had fallen under the power of certain fears which drove him to most puerile acts. His mental depression was profound, especially in the early morning hours.

At the time of the incident about to be related he had been under treatment for a fortnight or more, and was beginning to get a better hold upon his forces. We sat together in the twilight of a winter day. Before me I saw a man of fifty-two years, with a countenance in which the lines of dissipation, fatigue and discouragement were strangely blended. Success had rewarded him financially, and his affairs were in a normal state; but he had an irrational fear of financial and physical ruin. For the twentieth time I had been urging upon him the mental attitudes essential to relief, and not without effect. I had been able to see from day to day a growing relief of nervous tension; his conscious states gave evidence of better tone, and he entered with more sincere interest into discussions of topics foreign to his morbid states.

Freud and others have shown us how industriously the subconscious forces work to counteract morbid tendencies, with an aim to restore mental and physical balance, without direct attack. The language of the subconsciousness appears to be largely symbolic. I suppose the recalling of the story about to be related was an example of such action. It had a most helpful effect in his case, and I have used it with pronounced effect in the treatment of many cases of neurasthenic and psychasthenic ailments.

The Story

It came out incidentally in the midst of our talk, with no sign of premeditation, and without the relator's appreciation of its fitness.

"Many years ago," he said, for he was a man of reminiscent mind, "I spent several years in the wild west, becoming inured to its rugged features and growing unafraid of its perils. When I awoke this morning and began to feel my morbid terrors, I was reminded of an experience of those early days, which I am about to relate. Terrors have made for me a dreadful rosary.

"At one time I had occasion to go from A to B, a distance of about ten miles, and I thought it a good idea to go afoot. So, after providing myself with a rough staff, I started out in patriarchal fashion on my journey. I rarely carried weapons, and on this trip I was unarmed. The day was bright, and the air full of ozone. I was a very happy man in those days. My health was perfect and my strength superb. My heart also was light and my prospects were bright," he added with a sigh.

In the twilight I saw the play of his emotions as he proceeded with the recital. He had been an untiring doer of the world's work. Like most men of his type, unfortunately, he had learned to rely more on drink and tobacco for the stimulation of flagging energies than on spiritual vision and a conscious alliance with the universal forces through the subself and the renewals that come from hidden sources. There was no question that the shattered state of his mental and nervous powers was largely due to his unwise manner of living. Yes, here was a man of native strength and fine training—a man closely allied with some of the most successful business and professional men of our city—now so broken in health and spirit as hardly to be able to attend to his duties, owing to the exclusion from his

dominating consciousness of those emotions which reach deeper than physical sensibilities and take in sources of renewal to which physical reflexes do not directly respond. The standing of the man and the contrasts he suggested deeply impressed me.

"I pursued my journey with a light step," he went on to say, "enjoying every rod of it. At last, among the few human habitations which came into view, I noticed the 'tumble-down-nest' of some pioneer, with many evidences of thriftlessness. After pausing for a moment to consider it I was about to resume my way, when out came a pack of hungry-looking dogs, with savage barks and confident bounds. A sudden terror seized me. My helplessness was abject. No aid was near. I had no time to climb a tree. What a poor defense should I make with no weapon but a rough stick against so many ugly brutes! The creeps went up and down my spine in troops, and I verily believe that every individual hair stood on end.

"The mind often acts with instant logic and precision, and so it did on this occasion. In my contests with men in the world of business I had learned that he who loses his head is foredoomed to defeat. I had also learned that the best way to reach a result in the face of formidable, but not hopeless, opposition is by an indirect route. In a contest, the man who does the unexpected thing gets an edge on his antagonist. The best there was in me came at once to the front, and it had to, for there was no other dependence than myself.

"I was ready with a surprise for my adversaries. The character of it had flashed into my mind all of a sudden. You have seen the strong, self-reliant dog trot along about his business when attacked by curs? Well, I resolved to resort to dog tactics, and so I trudged along with the profoundest nonchalance. I acted as if there were no dogs in the vicinity. This seemed for the moment to make my enemies the fiercer in their threats of bodily injury, but no one of them was intrepid enough to attack me.

"It proved to be a severe test of my self-control. I suppose the dreadful consequences of giving way to my fears was what held me. It was a case of like curing like; one set of fears inhibited another and thus saved me."

"Didn't the dogs so much as nip your clothing?" I inquired.

"No. To be sure they danced and snapped, but my indifference to their threats appeared to rob them of their courage."

"The best possible illustration, my friend," I exclaimed, "of the course I am urging upon you in this other great emergency of your life. *Ignore those dogs of fear and you will be safe.* Meet them on their own ground, with their own methods and they will be sure to destroy you."

I do not need to add that this man won his second fight.

4665 Lake Park Avenue.

Emetin and ipecac are equally efficacious in expelling entamebae from the intestinal tract. The time required to expel the entamebae with the two preparations was also about equal.

Marked constipation (not habitual), mucous and bloody discharges, with or without pain and loss of flesh, not promptly yielding to treatment, are sufficiently significant of a neoplasm to indicate the necessity for an exploratory laparotomy, if colonoscopy, radiography and palpation have failed to locate the lesion.—*American Journal of Surgery.*

PSYCHOLOGY AND THE PHYSICIAN.

OTTO HERSON,

COLUMBIA UNIVERSITY.

New York

Today the young and ambitious student enters the medical schools where he receives a careful training in anatomy, surgery, therapeutics, and the other branches of medicine, which, at the close of three or four years, gives him a host of facts and formulæ of ailments and remedies that represent to him a great automatism which he is subsequently to employ to diagnose and to treat, and that is all. He is well acquainted with the functions of the heart, lungs, stomach, intestines, and the various glands, and at a moment's notice can describe each of their pathological characters, but of the working of the mind—the thoughts, the feelings, the volitions—he knows very little and practically nothing. He calls that field a bewildering complexity, non-medicine, metaphysics, or a philosophy, and leaves it to become deciphered by the specialist. Yet he forgets that a knowledge of this "bewildering complexity" is even more important to him than the knowledge of all the other vital organs of the body, and of this he knows least.

It is evident that a knowledge of anatomy or the structure of the various cogs and wheels of the human mechanism is necessary for the better understanding of physiology or the function of the various cogs and wheels of this human mechanism. It is also evident that a knowledge of the body in its normal state, that is, physiology, must be necessary for the understanding of the body in its diseased state, that is pathology. Finally it is evident that a complete mastery of the knowledge of the body, both in a normal state and in a diseased state, is necessary for the physician who guards the body. It remains to be made evident that a knowledge of the thoughts, the feelings, the volitions, or the workings of the mind, and the methods, laws, and systems pertaining to these, because of the influence which they have over the body in health or in disease—it remains to be made evident that, in other words, a knowledge of psychology, because of its paramount value to the very practice of medicine, is even more important than the knowledge of all the other vital organs, or of all the other subjects now studied in the medical curricula. And yet psychology as a subject is not recognized by any at all.

It seems absurd to give such a high place to a study of the mind as compared with all the other organs of the body. Are not the lungs, heart, digestive organs and the various other glands necessary for the health of the body, and is it not true when just the heart ceases to pump the blood or the lungs to continue in function, that the very essence of life passes away? Then why should not these organs tower the list and not the brain? The solution of the problem is its own answer. We have studied the heart, for example, since the days of antiquity or of Hippocrates, and in that time, we have discovered practically every fragment about it which led us to realize its importance, but of the brain, we are first beginning its study, and not knowing much about it, we cannot appreciate the due value or importance. Surely, if we do not continue our investigations, we shall never be able to appreciate its value and importance or solve many mysteries of the body upon which it is reciprocally dependent. In the second place, it is true that when any of the vital organs ceases in function, life passes away and that when the brain becomes maladjusted, life remains intact and still goes on. But although life does go on in the latter case, it is a vegeta-

tive existence and one like a piece of property where the expense to maintain it exceeds its income. Hence the importance and value of the brain in relation to the rest of the body.

The brain through a thought can make some muscles contract and some relax. It can move the lips, vocal chords, chest and disturb each of their functions; control the eyes and their various movements; stimulate the limbs, head, trunk, and inhibit their activity; petrify every muscle-shred or make each tremble. The mind can regulate the vasomotor system and through a thought can cause a group of blood vessels to constrict here and a group to dilate there and make us blush or pale; control in the same manner the action of the organs—the beat of the heart, and the actions of the lungs, stomach, intestines, bladder and generative organs. It can control the glands and their secretions—the sweat glands and make us perspire, the salivary glands and parch our throat, the mammary glands and change the secretion of milk, the adrenals and increase the pressure and coagulability of the blood, the gastric and intestinal glands and regulate our appetite and digestive processes, the lachrymals and lubricate our eyes.

Should not the mind, its methods or systems of study, that is psychology, because of the influence it has over the body, become an object of study and investigation by the physician? Many a disturbance of an organ of the body has been due to a disturbance of the mind, as a fixed idea, a compulsion, an obsessive thought, yet physicians have treated the disturbed organ locally, and because of their ignorance of psychology, have ignored the mental factor entirely. Enuresis has been treated locally as a disturbance of the sphincter of the bladder, yet the possibility of the influence of the mind upon the bladder has been lost sight of, because of the ignorance of psychology. In the same way, anorexia, hysteria, and many other mental disturbances that manifest themselves with bodily symptoms or disturbances, have been regarded in the same thoughtless, haphazard, and erroneous manner.

The mind not only can influence the body, but various changes in the body can also influence the condition of the mind or consciousness. A fever or disease can alter the mental processes and produce delirium; a change in the blood supply can produce a cessation of mental activity, as in fainting, or a more permanent affair, as in organic aphasia and arterio-sclerosis; indigestion, fatigue, sleep, and the consumption of drugs, each can produce a change in the mental processes; adenoids can affect the mind and produce changes in attention, sometimes memory and perception; changes in, or disturbances of the internal secretions or ductless glands, as the thyroid, the pituitary, produce forms of idiocy as cretinism or myxoedema or exophthalmic goitre and dispiritism, respectively. Finally, changes in the organic brain itself may disturb consciousness as a tumor which may change the personality, a blow which may wipe out the memory as in anterograde and retrograde amnesia, a hemorrhage or an effusion of blood or apoplexy which may produce paralysis and aphasia, an inflammation of the brain tissue which may result in delirium, and finally a deficiency in size of both hemispheres which may cause idiocy or feeble-mindedness or amentia. Is it not, therefore, evident that the mind may influence the body and the body the mind, and therefore, a knowledge of one must needs a knowledge of the other? The physician must master both mind and body because of the reciprocal influence which one has over the other in determining health and disease. Thus the physician must be a psychologist.

The study of the mind, that is, psychology, is not only indispensable to the physician because of the reciprocal relation, but also because of an undisputed necessity to the very practice of medicine. The physician is first called upon to diagnose, that is, to discover what disturbs his patient, and second to treat, that is, to do away with that disturbance he finds. The study of psychology is of value to the physician first in his diagnoses, and second in his treatment.

First, psychology is valuable to the physician in making his diagnosis. It is valuable to him in two ways inasmuch as it furnishes material which can aid him to make a diagnosis and second which is absolutely necessary to make a diagnosis. The psychological laboratory has discovered methods and results for the diagnosis of the senses which the physician with his own initiative has not surpassed. This is true in the realm of sight or vision, hearing, touch, taste, smell and the sensations of pressure, temperature, pain, and so on. It is the psychological laboratory that must furnish the physician with the characters of the various sensations in a normal state so as he may recognize these when subnormal or abnormal. In vision, it must explain to him the phenomena of color vision, contrast, and how to obtain the acuteness of vision, the limits of the field of vision, and the state of the optic disk so important in the diagnosis of neurological disorders. Psychology can also aid him in the study of eye movements, and in the various subtle methods employed to diagnose amaurosis (functional vs. organic) diplopia, polyopia, micropsia, macropsia, dyschromatopsia, and other functional and organic visual disturbances and to distinguish between one class and the other. In hearing, psychology can aid the physician with the results of its investigations there, as, for example, the use of the Galton whistle to determine the upper and lower limits of auditory sensations, and the methods employed to determine "tonal islands" and auditory acuity. In touch and allied sensations, psychology furnishes tests for asteriognosis, and other methods and results pertaining to esthesiometry or "two point threshold" valuable in nervous and mental diseases. In taste and in smell, psychology furnishes data concerning the phenomena of compensation, rivalry, and contrast under normal and diseased states experimentally tested valuable to the physician in anosmia, ageusia or similar diseases. In labyrinthine sensations it has conducted experiments with animals; and here again its methods and results are indispensable to the physician in his knowledge of vertigo and of disturbances of the semicircular canals. Finally, pain, cutaneous and non-cutaneous, as revealed by psychology, can be of value to the physician.

These are just a few illustrations how a knowledge of psychology is of value to the practice of medicine as far as the senses are concerned. But psychology does not only deal with the senses; in the same way, it also deals with the phenomena of attention and fixes its resistance to distracting stimuli; memory and explains methods of measuring it, and gives the experimental results concerning the power of memory under certain conditions and with certain material; perception, its methods and its quickness and correctness under normal conditions; mental excitability and discrimination power; association, its kinds, and its rapidity for various groups under normal conditions; reaction time and the conduction of nerve impulses with various stimuli and under various conditions; fatigue and exhaustion, the factors upon which these are dependent, and the methods to accurately measure them; the emotions and mental stability; and finally suggestion, inhibition, facilitation, and mental resistance to various drugs as, for

example, caffeine, strychnin, opium and its products and the like—all of indispensable value in the diagnosis of nervous and mental disorders.

Moreover, psychology can aid the physician in his diagnosis of idiocy or feeble-mindedness. Through the study of individual psychology, he can be guided in the making of more accurate diagnoses and adjust his methods to individual or group differences. Proceeding on the basis of the reciprocal relation of body and mind, he will be able to recognize heart lesions, through changes in the emotions, adenoids through a lack of attention, uremic acid in the body through irritability, fever through delirium, and so many other disturbances through the expression of the mental processes, and vice versa. With psychology, then, he can not only proceed to diagnose disturbances of the nervous system but also those of the rest of the body which can express themselves in the form of changes in mind or consciousness as changes in attention, memory, feeling, reaction time, association, discrimination. To do this the physician must not only be familiar with these various phenomena and know what they are about, but also with the methods of evaluating them and the conditions with which they vary. In other words he must know psychology. For it is certain that he must know the normal before he can discover or pass judgment upon the abnormal, and that he must know something about memory, attention, association, before he can examine these processes in his patients. Let us ask the question: how can the surgeon operate without knowing anatomy; or how will the physician examine mental processes in nervous and mental diseases, when he knows nothing about them—when he knows no psychology?

Finally, psychology has and explains the use of a number of instruments which may also aid the physician in his diagnosis. The chronoscope measures the time of mental phenomena or measures the reaction time; the sphygmograph measures the pulse changes in emotional states; the pneumograph studies the breath variations under various conditions; the plethysmograph notes the changes in the filling of the blood vessels of the limbs in relation to the brain supply; the ergograph studies muscular work and that with influences of fatigue, attention and volition; the automatograph studies involuntary movements; and finally, the galvanoscope studies the influence of ideas and emotions upon the glands of the skin leading to an analysis of repressed mental states and thus the causes of many mental diseases. So much for the value of psychology to the physician in his diagnosis of disease.

Psychology is also of value to the physician in his treatment of disease. Diseases may be treated by influencing the various parts of the body with drugs, particular diet, electricity or hydrotherapy. Body and mind being reciprocally related, diseases of the body may be treated by influencing the mind, where a change in one of the mental processes will bring about some change in the condition of the organs of the body. Disturbances may be due to disease within the brain which may upset the mental states by virtue of the relation between the organic brain and mind, or they may belong to other brain parts which are only in an indirect way under the influence of the mental states or which are themselves indirectly producing changes in the mental life. Disturbances may also be due to disease existing entirely outside of the brain in any part of the body, and yet through the medium of the brain and spinal cord, may produce effects in the mind or be open to influences of it. In each of these cases, the disturb-

ances are either due to the disease within the brain or a disease entirely without it, and yet in some way produce changes in the mental processes. Is it not, therefore, possible to treat these disturbances due either to disease within the brain or entirely without it, by influencing the mental states, because they are in some way connected with them or because of the influence which they have over the bodily system?

The treatment of disease whether due to a disturbance within the brain or one entirely without it in some other part of the body by influencing the mental states is largely a psychological process and therefore demands a knowledge of psychology. It demands chiefly a knowledge of the states of the mind and brain and the methods with which to touch and to change certain psychophysical processes and states in mind and brain, and which are to awaken certain associations to inhibit those disturbing states of emotional depression. To-day the physician who does not know psychology will use drugs. But why use drugs and damage the metabolic mechanism when the same process can be invoked with more finer and harmless certain means?

What shall we say of diseases which require a mental treatment and which experience has shown can only be dealt with in this way? In idiocy and feeble-mindedness and many of the psychoses, the somatic signs are few while the mental signs usually determine the diagnosis. This means that the examination of such cases is largely a "mental" examination. Adding hysteria, neurasthenia and psychasthenia, it also means that the treatment of such cases is largely a "mental" treatment, for in no other way can we influence the mind which is maladjusted and gives rise to physical signs, except by influencing it. Is not a knowledge of psychology, therefore advisable? If the physician wishes to restore equilibrium by influencing the mind, a grand avenue open to him, he must be able to understand the mind, or, in other words, know psychology. The surgeon cannot proceed without a knowledge of anatomy; the pharmacist must know chemistry; and so in the same way the physician must know psychology. Common sense cannot rule here!

Besides being of value in the diagnosis and in the treatment of disease, psychology can assist the physician in the better understanding of all mental disturbances. Just as pathology, physiology, and anatomy serve as a foundation to general medicine, bacteriology for the better understanding of the infectious diseases, so psychology serves for the better understanding and solution of the mental disturbances.

In the past, diseases of the mind were explained, and thus accordingly treated, in terms of witchery, the miraculous, the mysterious, the divine. In modern times they were placed on a clinical basis, which soon became superseded by the psychological. Would a knowledge of psychology be of value here? For illustration's sake, I cite Janet's definition of hysteria:—"Hysteria is a form of mental depression characterized by a narrowing of the field of personal consciousness and by a tendency to a dissociation and emancipation of the system of ideas and functions that constitute the personality." Thus hysteria is nothing more than a problem in psychology.

It seemed that the explanation of tuberculosis in the terms of the bacillus of Koch; that of typhoid in the terms of the bacillus typhosus, and so on, made the study of bacteriology necessary to illuminate the understanding of the infectious diseases and the treatment of them. Does not psychology do for the mental diseases what bacteriology does for the infectious diseases?

Why do we not find the study of psychology necessary for the understanding of the mental diseases, their diagnosis and treatment, as we did the study of bacteriology, for the infectious diseases?

Indeed the time seems right for a systematic introduction of psychology into medicine. It does not have to be the sort of psychology studied by those preparing to teach or those seeking an education, but the psychology so arranged and devised as to be of specific use to the medical student, as his chemistry, for example.

Of course there will be many who with justice will consider such a movement as very radical. The history of education too is a series of movements and oppositions to them. To-day there is no doubt why history should be taught in the schools, yet decades ago that was open to many a serious dispute. In the same way at some future time there will be no doubt why psychology shall be taught in medicine, yet to-day its value may be questionable. History was believed to be a study only for statesmen and kings; psychology it is believed is only a study for teachers. But both these ideas have been proved to be erroneous. History was not only to be studied by statesmen and kings, but by all others as economists, poets, novelists and scientists. So psychology is not only to be studied by teachers but also by every other profession or occupation. To continue the analogy, it was claimed that history when introduced into the schools would overcrowd the curriculum; that the educators had quite enough in teaching Latin and Greek without having an additional subject to master and teach. In the same way, it may be held that the medical student has enough subjects to master without having an additional one of psychology thrust upon him. Tradition and conservatism are safe methods and policies to follow, but we must admit the new if they contribute toward efficiency and perfection. Prior to 1880 medicine had practically the same departments as to-day; the discoveries of Koch, of von Behring, of Metchnikoff and of Pasteur produced a new science called bacteriology. Educators saw that it was useful for the understanding and treatment of the infectious diseases and added it to the medical curriculum. Is not the study of psychology just as essential to the mental diseases and even diseases in general, as bacteriology to the infectious group?

From some quarters, it may be held that psychology is non-medicine, that it is useless in medicine, and that it is the "popular thing." Those who regard psychology, in relation to medicine, with such tension, respectively plead ignorance of both psychology and medicine; ignore scientific procedure and forget the relative value which the subjects of other professional curricula play to their particular professions, as the required material on the nervous system to the dentist, or the many years of drawing or history to the teacher of arithmetic; and finally lose sight of the fact that the entanglement of the thoughts, feelings, and volitions which seem to obscure the expert psychologist, is above the "popular thing"—rather in the realm of science.

They are the ones who are swayed by fads, and unscientific generalizations which they accept unhesitatingly to take the place of the psychology necessary for the practice of medicine. The ignorance of psychology in medicine not only has allowed free admission of unscientific material possessing, however, enthusiasm and fascination, but has also allowed the province of mental healing to escape from its bounds. Wrapped up with the garb of religion it has taken an independent existence and now has become so firmly established that it is competing with the physician which really is

his own. And the whole cause lies in the fact that the rejection of enthusiastic fascinating and unscientific material termed "psychological," and the mastery and practice of mental healing demand a knowledge of psychology. The physician lacking this must be baffled in one direction, and miss the fruits of the other.

In spite of the opposition at all times, to anything new, the time came when these were accepted, and the time will come,—the time must come—when the value of psychology to medicine will be recognized. To shut out one from the other is to claim that science is made up of little divisions or water-tight compartments, each existing by itself, and each working selfishly for itself, instead of each working for the other, for the advancement of them all. Medicine needs psychology, and where the physician does not possess a reasonable amount of it, he will abstain from approaching a fruitful field requiring it, and also prove less efficient in any other field due to this deficiency, rather than blunder by his ignorance. He feels that whenever he touches the patient's body and examines his heart or lungs, that a background of anatomical material and general pathology gives meaning to all his observations. But in the field of mental states and their connections, in the arena of ideas, emotions and volitions, he simply lacks that background, and he avoids what to him is foreign territory. But is he justified in allowing that territory to remain foreign? Medicine cannot be represented by men unable to use its most effective tools, tools, not belonging to the specialist or to some field of philosophy, simply because they have not learned psychology.

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Nonsuppurative Subphrenic Peritonitis.

A claim of priority in the description of a not uncommon complication of appendicitis as well as other diseases of the viscera is made by Harold Neuhoof, New York. He refers to an article by himself in *Surg. Gyn. and Obs.* for March, 1912. The pathologic and clinical entity referred to and there described is, he claims, the same as the one recently described by R. I. Lee in the *Journal A. M. A.*, April 17, 1915. That such a clinical picture could occur has apparently been almost entirely overlooked. Neuhoof's own paper dealt with the condition only as a complication of appendicitis, the most frequently observed cause. At the time it was published the only actual proofs of the existence of the subphrenic inflammation were an exudate over the superior surface of the liver, seen at a laparotomy in one case and dense inflammatory tissue between the liver and the ballooned diaphragm encountered in an exploratory operation in another case, also resistance to the aspirating needle and withdrawal of small amounts of clear fluid in several others. Since then he has had the opportunity of seeing a postmortem of a patient dying after a subphrenic peritonitis due to a diseased gallbladder. A description of a typical case is given and the symptoms are compared with those of Lee's four cases. Lee's contribution is of distinct value in the presentation of more clean cut physical signs and the demonstration that more obscure foci than a diseased appendix, gallbladder, etc., may be the source of infection. The clinical pictures of the groups of cases, however, are identical.—(*Jour. A. M. A.*)

Psoriasis has responded most favorably to thyroid treatment, and several cases are on record in which an attack has been cleared up completely under the influence of thyroid apart from local treatment, or in which thyroid has been found to be a valuable adjunct to local remedies.

Special Article

STERILITY IN WOMEN.

So many women, who fain would bear children, are sterile that we welcome the study this subject is being given in this country and abroad. Sterility is the cause of endless mental suffering on the part of the would be mother and often results in marital discord of a serious nature. Many of our female neurasthenics can truthfully ascribe their nervous condition to worry over their inability to assist in the propagation of the race. MacNaughton Jones, sometime president of the British Gynecological Society, has contributed a survey of this subject to the *Practitioner* which is worthy of the careful consideration of the medical profession.

It is obvious that when a practitioner is consulted by a woman for sterility, he has to exercise considerable caution and care in diagnosis, and perhaps in treatment.

One must be content to deal in a general manner with the practical facts that must be kept always before us, if a reasonable time of matrimonial life has expired without conception, or that through abortions or miscarriages the woman's fecundity ceases, and she is childless. The history of the researches into the causation of sterility is a lengthy one, from the time when Marion Sims exhaustively investigated the cervical mucus and the spermatozoa contained in it immediately after intercourse, and first brought about impregnation by intra-uterine injections of the seminal fluid, to more recent years.

When a woman seeks advice on account of sterility, the responsibility of the male for the fault has to be remembered. The statistics published on this point prove that in such a considerable proportion is sterility to be traced to the husband, that inquiry as to his sexual health is imperative. On the wife's side, if it be only an apparent hindrance, through some abnormality of the introitus, shortening of the vaginal canal, abnormality of the portio and os, or any evidence of a chronic inflammatory condition of the vagina or uterus, or premature escape of the seminal flow, the spermatozoa must be examined, and the husband's share in the responsibility fixed. In such inquiry it is necessary that delicacy, tact, and judgment should be exercised, while opportunity is made for questioning or examining the husband without raising the wife's suspicion. We have to ascertain that there is no contributory fault in the act of cohabitation, no congenital or acquired flaw, or malformation of the penis; no consequences of previous gonorrheal inflammation, or, possibly, actual impotence. Without healthy spermatozoa, conception cannot occur, and when there is ground for doubt, the seminal fluid should be examined.

In some instances we arrive immediately at the cause in the female genitalia, by finding that the hymeneal orifice is contracted, and the hymen intact. The employment of an anesthetic is often necessary before we can arrive at a satisfactory conclusion. In inquiring into the woman's history, we ascertain the nature of her employment, and if there has been mental strain previous to marriage. Pressure of hard study among women who go in for higher education is unfavorable to conception. It is well to recollect that statistics prove that, in the great majority of healthy marriages, conception occurs before the termination of the first sixteen months of married life, or at least before the end of the second year. Further, that up to the end of the fourth year, we cannot fairly assume that there is sufficient ground to regard the case as one of sterility. From this time

forward, the proportion of sterile women increases with the years of married life.

In examination of the introitus, we note the position of the vaginal orifice, if projected too far forward from abnormal pelvic obliquity; the position of the clitoris, if out of reach of contact during coitus; if there be any enlargement of Bartholin's or Skene's gland. Extreme sensitiveness or pain on touch is associated with the spasm or vaginismus, a slight fissure at the fourchette, or an ulcer at the margin of the hymen. Passing to the vagina, we may find it short and contracted, a stricture of the canal, the cervix bathed in discharge, or a general inflammatory and granular state of its walls. In all cases the dorsal position and the use of a duckbill or expanding speculum, are necessary.

In examining the uterus, we note a short, conoidal, elongated, or absent cervix; the size of the os, or its partial or complete closure, and the length and patency of the uterine canal. We may find stenosis of the isthmus, and the existence of a myomatous, polypoid, or other tumor. The nature of any uterine discharge is afterwards determined by careful examination in the laboratory. A chronic endometritis is not an unusual cause of sterility. The position of the uterus, and the presence of an acute anteversion with flexion or retroflexion, is ascertained. Enlargement of the ovary from any cause, or its prolapse, a parovarian cyst, and actual dilatation or a swelling of the tube, are easily detected. But, obviously, some tubal anomalies such as elongation, interstitial changes leading to stenosis, torsion causing blockage, and adhesions, are often not possible of detection.

We must regard gonorrhea as one of the principal causes of sterility in both sexes. In the male, there are the secondary consequences, through the involvement of the seminal vesicles, orchitis, prostatitis, epididymitis, both unilateral and bilateral. Martin's ingenious operation of joining the vas deferens to a healthy portion of the epididymis is meant to rectify this latter condition. In a limited number of cases, as, for instance, in an old chronic epididymitis, it may be necessary to aspirate the testicles in order to ascertain whether any spermatozoa are secreted or not. If none are found, the case may be looked upon as practically hopeless.

In the woman, once the presence of gonococcus is established, the inquiry into the extent of the affection and consequent treatment must be thorough and active. The fatal facility with which the adnexa are invaded, even before the woman is forced to seek advice, is well known. If the vagina and cervix appear to be alone affected, these have to be dealt with at once in one of the several methods adopted for destroying the gonococcus, and restoring the vulva, including Skene's and Bartholin's glands, to a healthy condition. The greatest care has to be taken that neither by the sound nor carrier is the infection conveyed to the fundus. When the cervical canal has been thoroughly disinfected by such means as the application of nitric acid, 5 per cent. solution of nitrate of silver, or the cautery, a probe tightly armed with cotton is carried into the cavity of the fundus, and any discharge collected on it is carefully examined for the gonococcus. A fine suction syringe may be used for the same purpose.

If it be found, then the entire canal must be treated. For the vagina, Jones reports the most satisfactory results with nitrate of silver and collosol silver applications, followed by glycerine and ichthyol tampons; when the fundus is invaded it is well to dilate the uterus moderately before making any application. Nitrate of silver in the first instance, followed by iodine and ichthyol in subsequent dressings, is quite efficient. Should the

disease have gone further, and the adnexa be affected, then the case is one for celiotomy and exploration.

When we turn to the sources of sterility in the male, it has primarily to be borne in mind that impotence here is consistent with apparently normal cohabitation. The perfect healthy act, with strong sexual desire, may be present, and yet the woman be sterile, the fault lying in the virility of the spermatozoa, which are incapable of fertilizing. Here the defect is very liable to be attributed to the woman, and this, with the absence of conception, has a deleterious effect on her health and sexual organs, leading possibly to an affection of the latter. A woman who apparently has had normal marital relations with her first husband, and still has never conceived, does often have children by the second.

Having inquired into the state of the husband's health generally, we exclude absolute impotence from want of power, and congenital or acquired abnormality in the penis and testicles; the consequences of syphilis or gonorrhea, or any obstruction, such as tight prepuce, stricture, or prostatic enlargement. If there be no living spermatozoa found in the seminal fluid, it is a case of *azoospermia*; while if but few living elements are present, or none at all are found, it is a case of *oligospermia*. If dead or unhealthy and feeble ones are found, *necrospermia* is the term applied.

With regard to the vitality of the spermatozoa, the living ones have the tail straight, while if it be curled up, they have come out dead.

There may be psychical sources of the sterility, such as nervous apprehension, physical repulsion, and want of affinity on either side. We ascertain if the coitus be normal in regard to erection, sensation, the time it lasts, ejaculation of the semen, or if the act be painful. We seek for atonic causes in masturbation, venereal excess, and the use of drugs, alcoholism, and tobacco. Some of these conditions we find not infrequently in the husband co-existing with the sterility. They are present in such enfeebling diseases as diabetes, phthisis, affections of the spinal cord, all leading to loss of sexual power, and mental depression consequent upon the inability to carry out and complete the act. There is the failure that results from syphilis, in any of its many "reminders," resulting in some serious systematic or local affection; gonorrhea, causing urethral obstruction and difficulty in erection, as well as the diseases of the female genitalia consequent upon infection. Apart from such hindrances, there is the deliberate withdrawal before ejaculation.

We are hurriedly to conclude that, apart from an obvious congenital abnormality, some defect or affection of the genitalia is in itself sufficient to explain the sterility. Impregnation may occur with endometritis, and diseased conditions of the adnexa, as well as with any form of version or flexion, provided there be not such complete closure of the canal as to prevent the possible entrance of the spermatozoa. In any doubtful case, before we decide on operation, we have to examine the seminal fluid. An able paper by Max Hühner in the *Urologic and Cutaneous Review* of November, 1914, appears on the subject and should be read in its entirety. It deals with the value of the spermatozoa test in definitely fixing the responsibility on the husband or wife. The test involves examination of the cervical mucus for the presence of healthy spermatozoa as soon after coition as possible. If these be found, the author argues that it disposes of most other sources of male sterility, for such spermatozoa, found both in the male and female, negative any assumption that the defects I have enumerated in the husband can be the cause of the

sterility; it shows too that the vaginal and cervical secretions play no part in its causation.

Hühner gives explicit instructions for examining for spermatozoa from the fundus. The cervical mucus must first be examined; then there has to be most careful cleansing of the cervical canal. The examination has to be made on the spot. He uses either a wooden applicator or a special syringe for the fundus uteri. If the spermatozoa found in the cervix are dead, then he obtains a *condom* specimen. This decides if they have been alive or were killed in the passage to the uterus. If they be living, healthy spermatozoa, the fault cannot be with the husband. It may then be attributable to some quality of the cervical or vaginal mucus. If before the next coitus a vaginal alkaline douche be used and the spermatozoa are now found alive and healthy, the hyper-acidity of the vaginal secretion is established as being the destructive agent. A pre-coital alkaline douche, Hühner says, will in such a case frequently effect a cure; whereas if it be a failure, then we must adopt other means to secure a healthy vagina, and deal with the endometrium by uterine applications or curettage. Still, if there be premature ejaculations and hypospadias, a bad case of stricture of the urethra, or other physical or nervous condition from which the husband suffers, which interfere with the arrival of healthy spermatozoa in the cervix, even though such be found in the *condom* specimen, the woman remains sterile.

Hühner even goes further, and, when necessary, with a special syringe extracts after coitus some of the mucus from the cavity of the fundus. If there be living spermatozoa found, the cause cannot be due to any flexion or affection of the endometrium, and so we may conclude that either the uterus is unable to support a healthy ovum, or that the fault is higher up in the adnexa. This conclusion is verified by the exclusion of any other uterine condition which would prevent impregnation. It is obvious that any jumping to conclusions from the presence of some abnormality in the female genitalia as the cause of sterility is wrong. Before we subject the woman to any operative interference, the possibility of the husband's share in the trouble must be put beyond question. At the same time when, from the degree of abnormality, there is an obvious reason why the woman does not conceive, whether the husband be at fault or not, it is our duty to rectify this, while at the same time we inquire into the husband's virility.

In regard to the prognosis, the most prudent course to pursue is not to give any assurance of a successful issue from the operative or other treatment. There is the class of case in which the symptoms, or some affection present in the genitalia, demand interference, and where, quite independently of the question of conception, operation is imperatively called for. There is the other class, in which the general health of the woman is in no wise affected, and in which we interfere for the cure of the sterility alone. In neither do we make a definite promise of a successful issue. We explain the probable cause of the sterility, and if it be one calling for operation we can assure the woman that the cure of the disease from which she suffers may be followed by conception, or that remedying the genital abnormality is frequently successful in bringing it about.

There is a final caution which it is well not to omit in regard to all operative measures undertaken for the cure of sterility. No matter how slight, they have to be carried out with all the precaution that modern asepsis demands, both in the previous preparation of the patient and the details of the technique, as well as in the subsequent treatment. This caution is the more

necessary when we remember that apparently trifling operative measures on the uterus may rouse some old dormant adnexal mischief into activity, and compel resort to more serious operative steps than were anticipated.

Diagnosis and Treatment

Treatment of Pernicious Anemia by Salvarsan.

Bramwell of London recites the progress of 21 cases of pernicious anemia he has treated by salvarsan. Since Bramwell introduced the arsenical treatment of pernicious anemia in 1875 he has had a large experience of the disease. He has notes of 141 cases, of which 110 were treated with Fowler's solution. He gives his impression of treatment.

The immediate result of arsenic by the mouth. Of the 110 cases treated by arsenic by mouth (Fowler's solution), in 36 cases (32.7 per cent.) there was no improvement; in 22 cases (20 per cent.) there was slight improvement; in 40 cases (34.5 per cent.) there was marked improvement; and in 14 cases (12.7 per cent.) there was complete (? temporary) recovery.

The immediate result of salvarsan and neosalvarsan. Of the 21 cases treated by salvarsan or neosalvarsan, in 6 (28.5 per cent.) there was no improvement; in 3 (14.2 per cent.) there was slight improvement; in 5 (23.8 per cent.) there was marked improvement; and in 7 (33.3 per cent.) there was complete recovery.

The ultimate result of arsenic by the mouth. Of the 110 cases treated by Fowler's solution, in 12 cases (10.9 per cent.) the ultimate result is not known; in 4 cases (3.6 per cent.) the patients remain fairly well; in 2 cases (1.8 per cent.) the patients remain quite well; in 92 cases (83.6 per cent.) the patients have died. Of the 92 fatal cases in this series, 85 died from pernicious anemia and 7 from other causes (4 from pneumonia, one from heart disease, one from cerebral hemorrhage, and one from hemorrhage from the bowel).

The ultimate result of salvarsan and neosalvarsan. Of the 21 cases treated by salvarsan or neosalvarsan, in 1 case (4.7 per cent.) the patient remains fairly well; in 5 cases (23.8 per cent.) quite well; in 15 cases (71.4 per cent.) the patients have died. Of the 15 fatal cases in this series, 13 died from pernicious anemia (in one of these death was due to bronchopneumonia, which developed ten days after the first and only injection of neosalvarsan), and 2 from other causes. The average duration in months after the treatment was commenced in the two series of cases was as follows:

A. Of the 110 cases treated by Fowler's solution, the result is not known in 12 cases; in the remaining 98 cases (6 still alive and 92 dead) the average duration since the treatment was commenced is 14.3 months.

B. Of the 21 cases treated by salvarsan or neosalvarsan (6 alive and 15 dead), the average duration since the treatment was commenced is 12.5 months.

The comparison between the ultimate result in the two series of cases is not a fair one, for the length of time which has elapsed since the salvarsan treatment was commenced is very much shorter than that since the arsenical treatment by the mouth was commenced in the great majority of cases, which are still living, and which have been treated by salvarsan and neosalvarsan, will probably relapse and die. The percentage mortality in the two series of cases is therefore, in the meantime, unreliable.

The same statement applies to the average duration in months after the commencement of the treatment in the two series of cases.

Further, unless large numbers are compared, the comparison is apt to be fallacious, for the severity of the cases included in one series may be greater than the severity of the cases included in the other.

In giving salvarsan or neosalvarsan in cases of pernicious anemia the writer has always employed the intramuscular method of administration: 1, because in pernicious anemia a remedy is wanted which will produce a sustained and continued rather than an immediate and temporary effect. 2, because in severe and advanced cases of pernicious anemia (in which the patient's hold on life is very often precarious and a very little thing will turn the scale) the intramuscular has seemed to him to be a less hazardous procedure than the intravenous method.

In his earlier cases he employed salvarsan, and in the later cases neosalvarsan. The local effects produced by neosalvarsan are undoubtedly much less severe—much less local pain, inflammation, hardness, and swelling—than those produced by salvarsan. The constitutional effects were slight and not more marked in the cases in which salvarsan was employed.

The injections of salvarsan and neosalvarsan were in some cases followed by a slight rise of temperature and pulse, and in some cases by vomiting. In the cases treated by salvarsan the rise in temperature was usually most marked on the third or fourth day after the injection, and coincided with the greatest intensity of the inflammatory hardness and swelling in the buttock. The vomiting was chiefly seen in the cases in which neosalvarsan was given—it was, perhaps, due to the novocain, heroin, or morphin which was administered before the neosalvarsan was injected. The local inflammation produced by salvarsan was usually relieved by an ice-bag applied locally. A dose of novocain, heroin, or morphin was usually given before each injection of neosalvarsan, and was repeated, if necessary, two hours after the injection, and again if the pain was not relieved.

He doubts if neosalvarsan is as effective in the treatment of pernicious anemia as salvarsan.

In some of the 21 cases treated by salvarsan or neosalvarsan which died from the disease, the immediate beneficial results of the treatment were very striking. In some of the cases in which the improvement at first was only slight, very marked improvement ultimately occurred. In 19 of the 21 cases treated by salvarsan or neosalvarsan, Fowler's solution had previously been employed.

One great advantage which salvarsan and neosalvarsan possess over the long-continued administration of arsenic by the mouth, in the treatment of pernicious anemia, is that salvarsan and neosalvarsan do not produce peripheral neuritis, whereas large doses of arsenic given by the mouth in cases of pernicious anemia often do produce, in addition to other toxic symptoms, dryness of the throat, irritation of the conjunctivæ, pigmentation of the skin, keratitis, diarrhea, vomiting, etc., and very severe and intractable peripheral neuritis.—(*Brit. Med. Jour.*, March 6, 1915.)

List of Necessary Drugs.

J. G. B. Bulloch, Washington, says the following are remedies of greatest importance in practice: Hydrochloric, Tartaric, and Carbolic Acids, Apomorphia, Aconite, Alcohol, Aloes, Alum, Antimony, Arsenic, the Ammonias, Belladonna, the Bismuths, Boracic Acid, the Bromides, Cannabis Indica, Calomel, Camphor, Chloroform, Chloral, Colocynth, Copaiba, Cantharides, Capsicum, Creosote, Chysarobin, Cimicifuga, Coal Tar Products, Cocain, Sulphocarbolates, Calcium Salts, Digitalis, Duboisin, Elaterium, Ergot, Ether, Eserin, Fern, Oil

Male, Formaldehyde, Gas, Ginger, Gelsemium, Hydrastis, Hydrogen Peroxide, Hexamethylenamine, Irons, the Iodides, Ipecac, Ichthyol, Jalap, Jaborandi, Lobellia, Lithia, Lecithin, Magnesia, Menthol, Opium and Derivatives, Castor Oil, Oil Croton, Oil Cod Liver, Oil Anise the Potashes, Podophyllum, Phosphorus, Quinin, Resorcin, Santonin, Silver Nitrate, Sanguinaria, the Sodas, Senega, Strychnine, Sulphur, Tannin, Thymol, Veratrum, Zinc Sulphate, Zince Oxalate.—(*West. Med. Times*, July, 1915.)

Vaccines in Complications of Pulmonary Tuberculosis.

F. W. Wittich discusses secondary or mixed infections to pulmonary tuberculosis. He concludes that in a certain number of cases other organisms play an important rôle. These organisms may be the primary infecting agent predisposing to tuberculosis, or their presence may accelerate the growth of tubercle bacilli to such an extent that the cases should be called mixed infections. The discouraging results of vaccine therapy are due in many instances to faulty technique in their preparation and administration. As the ordinary preparation of homologous vaccines from sputum is attended with difficulty, the author describes a practical method of obtaining the vaccine. The mouth is washed out with hydrogen peroxide and sputum is discharged into a suitable bottle. A lump of sputum is then transferred to an Erlenmeyer flask one-third full of sterile, distilled water. The flask is well shaken until several pieces the size of a pea are freed. These are transferred to a second flask, and so on until in the sixth flask the pieces are about the size of rice bodies. Plain agar, blood agar, and broth tubes or plates are inoculated with this material. After growth and identification of the organisms, the cultures are emulsified with 2 or 3 c.cm. of normal saline solution.

The dose of the vaccine must be varied according to the age of the patient, the stage of the tubercular affection, the physical signs, etc., and the vaccine should be modified in accordance with the results of examination of the chest and sputum. The sputum of 196 patients was examined, and it was found that pyogenic organisms predominated. Hæmolytic streptococci were usually associated with the severest clinical symptoms, and also with asthma. These cases responded particularly well to vaccines. The author is of opinion that the vaccine therapy of secondary infections complicating pulmonary tuberculosis is a valuable aid in the treatment, when used with rest, fresh air, and good food, or in connection with tuberculin in selected cases.—(*Canad. Med. Assn. Jour.*, April, 1915.)

The Significance of Pain in the Right Iliac Fossa in Young Women.

T. J. McCann observes that while right-sided pain is usually thought to be due to appendicitis in his experience this symptom in young women is often due to some other cause. Some are of undoubted hysterical or neurotic origin, but with some underlying physical cause.

He differentiates from enteroptosis by injecting the colon with bismuth and by x-rays; from nephroptosis, by palpation of the kidney under anesthesia if necessary; from disease of the right tube, by vaginal examination. In several operations for supposed appendicitis, a small ovarian tumour was found.

Cholelithiasis with distended gall-bladder may simulate appendicitis, but percussion over the gall-bladder will elicit marked tenderness, and the gall-bladder can be detected under anesthesia if necessary. Stone in the

right ureter gives urinary symptoms with blood in the urine. Abdominal crisis due to Meckel's diverticulum, perforating ulcers, intestinal obstruction, and pneumonia, particularly in children, are to be considered. In typhoid fever, the fever precedes the pain.

Winslow states that he has come to believe that in young women, unless the symptoms of appendicitis are frank and clear, the condition is probably something else. Pain and tenderness in the right side without rigidity, elevation of temperature, and leucocytosis is usually not appendicitis. Again, apparently severe and long continued pain in the right side in girls is more likely to be neurotic than appendiceal. Pain may also be reflected from the pelvic organs or some of the other viscera, and the primary seat of the disturbance may be determined by a more careful examination.

There is probably no more common symptom in women than pain in one or other iliac region, and a careful examination is needed to determine the cause. Most frequently the pain is intestinal in origin, originating in the cæcum and appendix on the right side and the sigmoid colon on the left. The ovaries, however, are too frequently blamed, and the treatment employed, even the removal of one or both, proves futile.

A young woman, who had suffered from chronic pain in the right iliac fossa, at times increased, was examined under anesthesia at an important hospital. Nothing was detected, and she was discharged, being informed that the trouble was neurotic. As her pain continued and interfered with her livelihood as a dress-maker she sought further advice. The pain and localized tenderness suggested some trouble in the region of the appendix, and on exploring the abdominal cavity a well-marked, right-angled kink of the appendix was discovered. Complete cure of the pain resulted when the appendix was removed.

Kinks of the appendix, produced by adherent bands attached to the tip or to portions of the appendicular wall, are exceedingly common in the female. They give rise to pain persisting and increasing at intervals often most marked before the onset of the menstrual flow. They do not cause "rigidity, elevation of temperature, or leucocytosis." Should pregnancy supervene, the pain may disappear, or, what is not uncommon, may increase so as to demand surgical treatment.

Chronic appendicitis in women is characterized by increased pain before the onset of menstruation, and physical examination may reveal some enlargement of the right ovary. Too often the ovary is blamed and removed only to find that the old pain persists. The change in the ovary is secondary, and of the nature of a chronic edema, which proceeds to a natural cure when the appendix is excised.

Yet another common cause of "right sided pain" is delay in the passage of the intestinal contents. The cæcum may then be found filled with fecal matter. The majority of such cases yield to medical treatment, but in the event of failure the appendicular region should be explored.—(*The Practitioner*, June, 1915.)

Rodent Ulcer.

E. G. Little of London regards rodent ulceration as a terminal ulceration of very slow progression, and without metastatic invasions, which may originate in a great variety of ways, of which the following may be particularized:

- (1) Most commonly as a waxy papule or nodule;
- (2) As a non-pigmented warty growth;
- (3) As a pigmented mole;
- (4) As a senile change by which areas of skin may

become warty and often pigmented (Seaman's skin of Unna);

(5) As an epitheliomatous growth in damaged tissue;

(6) As a circumscribed indurated patch with or without pigmentation, usually in elderly persons;

(7) The senile pigmented wart, too, which differs from the last category, may, be followed by rodent ulceration.

Probably some cutaneous affections of very chronic type may be predisposing causes as well, and psoriasis has been in at least two cases thus followed by rodent. The epithelioma, which is not an infrequent sequel both of lupus erythematosus and lupus vulgaris, has some clinical features in common with rodent. It is much more rapid in extension as a rule, but it is singularly non-malignant in that it seldom causes glandular invasions, and recurrence after excision, which in view of its rapid local spread is the best treatment, is even less common than recurrence of rodent after operation.—(*The Practitioner*, July, 1915.)

Pneumonia Treatment.

Lévy Du Pan points out that the end and object of treatment in pneumonia should be to combat the destructive effect of the invading organism by weakening the virus of the infectious agent. General treatment directed to supporting the heart is a first necessity, for, as Bard frequently insisted, "the disease is in the lung, but the danger lies in the heart."

For specific treatment, something more is necessary; anti-pneumococcus serum has been tried, but the results have not been definitely good. Anti-diphtheritic serum has been recommended, but has not been found successful. Collargol at first seemed to be the remedy sought for, but its effect by inunction is not marked, whilst subcutaneous and intra-muscular injections are much too painful. The results of intra-venous injections are about the same in pneumonia as in other infectious diseases; the temperature is brought down quickly, and the general condition is notably improved. The technique of intra-venous injections is somewhat difficult, however, and for nearly five years Lévy Du Pan has used electrargol in hypodermic injections with excellent results. A crisis is obtained at latest in 48 hours, no matter at what stage of the disease the injection is given. One injection of 5 c.c. is enough, as a rule; two have very seldom been required.

He publishes six cases as typical of nearly 100 treated with no deaths. One of these cases is that of a child, 5 years old, with double broncho-pneumonia. Three injections of 5 c.c. of electrargol were given, and a good recovery was obtained.—(*Revue méd. de la Suisse romande*, January 20, 1915.)

Treatment of Acute Inflammation of Antrum.

G. S. Hett says the treatment of an acute antrum consists in establishing drainage as soon as possible. The aching pain experienced is due to the outlet of the cavity being blocked, owing to swelling of the mucous membrane.

A five per cent. cocain spray used in the nose will diminish the sensitiveness and shrink up the mucous membrane. A better method is to place a plug of cotton wool, damp with ten per cent. cocain, under the middle turbinal, but for this a head light and speculum are required, for it has to be done under direct illumination. An adrenalin spray will also effect the same result, but in some people the reactionary congestion produced makes this inadvisable. After shrinking the mu-

cous membrane, the patient should posture, i. e., lie on the opposite side to the affected antrum with the head low so that the secretion may drain out.

Steam inhalations may help the flow, and a warm alkaline spray is also helpful. It is advisable to allow the patient to apply the cocain.

General measures, such as warmth, rest in bed, aspirin gr. x. four-hourly, and an aperient should be adopted as well.

Under these measures, the acute symptoms usually subside; but if they remain and become more urgent, an anesthetic should be given, and an opening large enough to allow free drainage made in the inferior meatus.

Puncture and lavage are generally very painful in the acute stage, and although they may be successful, it is sometimes impossible to repeat them owing to the pain, and sometimes too, owing to the swollen mucous membrane of the cavity interfering with the free flow of the irrigating fluid.

Should the acute attack settle down, but there is evidence that the cavity is still secreting pus, puncture and lavage repeated a few times will usually clear up the condition.

Drainage through a tooth socket is not to be recommended.—(*The Practitioner*, Vol. XLV, No. 1.)

Public Health

Typhoid Prophylaxis.

It has been said that in order to get typhoid one must "either drink it or eat it"; but that is comparatively easy for any of us, considering that typhoid bacilli may be carried by the water or milk supply and through food contaminated by flies or the fingers of those who have come in contact with the infection. While the prevalence of typhoid fever in any community is an index to the sanitary intelligence of that community, it is an acknowledged fact that healthful and sanitary towns and cities suffer from the ravages of the disease as a result of importation of the infection from communities that pay little or no attention to public health and sanitation.

As an evidence of the value of antityphoid vaccination, all we need to do is to quote the experience in the United States Army. In the Spanish-American war one-fifth of the soldiers in the national encampment had typhoid fever. Among 107,973 men there were 20,738 cases with 1,580 deaths. In 90 per cent. of the volunteer regiments the disease broke out within eight weeks after going into camp. On the other hand, among 80,000 persons vaccinated in the army during 1911, there were only eleven cases of typhoid, with one death, among the vaccinated. During 1912 there were fifteen cases and two deaths from typhoid among over 58,000 soldiers, all of whom had been vaccinated. During this time our troops were mobilized at various places, and 20,000 men were encamped in Texas and along our southern boundary, where they remained in camp and on march for over a period of four months. Compulsory vaccination was enforced by the Surgeon-General of the Army, and this alone is responsible for the low typhoid morbidity and mortality rates.

Concerning the length of immunity, it is not yet known definitely what the duration is following an antityphoid vaccination. At present it is the practice of the Army to re-vaccinate against both typhoid and smallpox at the beginning of each three-year enlistment.

The experience with antityphoid vaccination in the

United States Army has been duplicated to a far greater extent in the European armies now at war. Practically all of the armies have been subjected to antityphoid vaccination, and never in the history of the world has there been such a low morbidity and mortality rate from typhoid in such an enormous number of persons confined within restricted areas and under sanitary conditions that have not been of the best.

Major F. F. Russell, U. S. Army, reports (Cong. Report 1404) that the vaccine or typhoid prophylactic used by the United States Army consists of a suspension of dead bacilli in salt solution, to which is added 0.25 per cent. of tricresol as a measure of safety. The vaccine is accurately standardized by counting the bacilli. Five hundred millions are given as the first dose and one thousand millions each for the second and third, ten and twenty days later. The skin of the upper arm is sterilized with iodine and the vaccine is injected subcutaneously. There is a local reaction consisting of a small red and tender area lasting about forty-eight hours. The general reaction, when present, gives rise to a headache and malaise, and sometimes to fever, chills, and occasionally to nausea, vomiting or diarrhea. Severe reactions are exceptional and do not occur in more than one to three persons per thousand. The occurrence of a severe reaction need not give rise to anxiety, since they all pass off quickly and leave no trace. No precautions are taken after vaccination other than to warn against use of alcoholic drinks and severe exercise. No hard work is required of the troops during the following twenty-four hours, but they are not excused from the ordinary routine work as a rule. It is the custom in the army to vaccinate simultaneously against smallpox on one arm and against typhoid on the other. If the vaccinia is severe the second dose of antityphoid is postponed a few days, but it has not been necessary to deviate in any other way from this routine. Up to 1914 over 400,000 antityphoid vaccinations had been made with no bad results reported. The absence of bad effects is attributed to the efficiency of iodine as an antiseptic and the presence of .25% tricresol in the vaccine.

Antityphoid vaccination has a field of usefulness in civil life as well as in the army. Those who in any way come in contact with the sick should be immunized, as also those who live in communities where the typhoid death rate is above the average. In the camps of engineers, contractors and pleasure seekers, where sanitary safeguards are not adopted, antityphoid vaccination is especially valuable and richly repays the time and trouble necessary for its administration. The traveler and the vacationist are especially liable to encounter the infection and should avail themselves of antityphoid vaccination as a preventive measure.

Antityphoid vaccine that is dependable and reliable is now prepared by the leading firms of biologic chemists throughout the country and can be obtained easily. The sensitized vaccine is preferred on account of the lessened chances of reaction and the shortened time required for the immunization.

The point to be emphasized is that the public should be encouraged to employ antityphoid vaccination even more generally than they employ ordinary vaccination for smallpox. In fact, the vaccination against typhoid is far more important because the disease is more prevalent.—(*Jour. Ind. Med. Assn.*, June, 1915).

An ultimate cause situated in the ductless gland chain, the ovary being the most important in this relation.

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Women Doctors.

The Harvard professor who smugly declared some time ago that "women are not temperamentally and physically adapted for general practice and research work" must be nursing several sore spots, for he has been handled without gloves by the critics, something which he justly deserved.

Women have not as yet succeeded in securing places upon the visiting staffs of our large hospitals, so far as our knowledge goes. A few hospitals are now employing women as internes, but beyond this their institutional opportunities have been greatly restricted. How foolish, then, the persistence of a point of view on the part of a few men which smacks of Oriental notions about womankind. Professional women have accomplished remarkable things in the face of unfair discrimination. What might they not accomplish if the last of the barriers were removed. There is no excuse whatever for the perpetuation of a single handicap.

Aside from the Oriental point of view the only reason for resisting the competition of women that we can think of is the possible fear on the part of some people that women may eclipse their professional brethren in the field of medicine. It has taken them an incredibly short time to equal the men. And in so far as preparatory qualifications are concerned, the women have, until recent years, maintained a higher educational average.

A Striking Paper.

A paper marked by great wisdom and practicality is that on "Adolescent Insanity and National Health," by Dr. Charles W. Burr, recently published in the *New York Medical Journal*. It is a hard paper to quote from, since every paragraph contains nuggets, and one

hesitates in making choice. We strongly advise those of our readers who have not read it to look this article up, and guarantee that there is a great treat in store for them. The paper is close-packed with medical and sociological philosophy expressed in an amusingly sardonic way, and the author castigates unmercifully and justly our educational, eugenic, reformatory and industrial ideas and methods. It is a brilliant, epigrammatic and iconoclastic contribution, though the constructive suggestions are plentiful.

The doctor draws a "fierce" picture of our weakness and effeminacy, but is full of faith that virility will win. "Fortunately," he says, "there are a good many cave men left who do not philosophize . . . and these cave men will by their descendants regenerate the race." But Dr. Burr is a philosopher, and, we take it, a good cave man. Even the cave men would be badly off without a few sound philosophers like Dr. Burr.

This paper with a "punch" has been much quoted by the lay press, because of its wholesome and brilliant analysis of conditions, unpalatable as it is, in a way.

Degenerative Disease After Forty.

The degenerative diseases, particularly those affecting the circulatory system, have increased in men after forty. After forty-five the degeneration is especially marked. But Dr. Louis Dublin, of the Metropolitan Life Insurance Company, ascribes the increase to immigration factors as well as to indigenous conditions. The vitality of our immigrants is not so high as that of the native stock, and their mortality is higher. Thus our general mortality suffers in consequence of this infusion. The mortality of England and Wales is about the same as ours. Sweden, Australia and New Zealand show a lower mortality than the United States. But in Ireland, Germany, France, Italy, Austria, Russia and Spain the mortality is higher than ours. Dublin reminds us that by far the heaviest immigration is from those countries that carry a high mortality, and insists that we have no right to assume that the mere entry of these immigrants into this country has at once a favorable effect on their mortality. Their adverse conditions of life, especially in our large cities, the economic stress they undergo and the dangers of the trades in which they engage, all point to a continuance of the higher death rates from which they suffer in their native countries. We know for a statistical fact that the death rate for native white males in the State of New York in 1910, for the age periods 55 to 59, was 27.0, while that of the foreign born white males for the same age periods was 35.4, showing an excess of 13.2 in the mortality of the foreign born whites over the native born.

The Menace.

"If a city," said Mr. Louis Marshall before the Constitutional Convention, "were to engage in business it would mean, eventually, that a very large percentage of the population of the city would be in the public service and you would soon be building up in every municipality a political machine of a magnitude never imagined." Mr. Marshall said this in the course of his argument against embarking in socialistic enterprises. It had been proposed in the Convention to give the city power to go into business.

Going into the health business is exactly what we think socialization of the medical profession means. Then the doctor would be a hired clerk, with about as much professional status as a letter carrier. Men would then go into medicine as they might go into the dry goods business. Few can discern anything healthful

in such a state of affairs, either for the profession or the community. Its advocates are chiefly men who ought to be in the dry goods business and not in a great profession. They either have the average business man's point of view, and are constitutionally unable to take the professional view, or they are men who have lost out in the competitive field. Some of the chief advocates of socialization are men occupying institutional and administrative positions to which they have gravitated after failing in the practice of medicine, and some are men who have achieved economic independence in the various ways open to ambitious social climbers, after which they now aim at important places for themselves in the bureaucratic machine that they hope to see develop. As for the rest, the less said the better.

Prohibition.

The voters and the medical profession in this State will soon have seriously to consider the question of prohibition. The Anti-Prohibition League, with headquarters in the St. James Building, has already begun to advise the people, using whole pages in the newspapers in this disinterested civic service. We recently read one of the League's advertisements and were struck by the remarkable character of its reasoning. After declaring that the people must not be misled by half-truths and twisted statistics, the League set forth that in Topeka, Kansas, a dry city, thirty per cent. of the arrests during 1914 were for drunkenness, and that in Portland, Maine, another prohibition city, there were 4,006 arrests for drunkenness in 1913. Then it went on to compare the nations of the world that have been users of alcoholic beverages with the nations of teetotallers—greatly to the discredit of the latter. China, Turkey and Central Africa are behind in thought, skill, strength and activity because they are "dry" lands.

Why is there such fear of prohibition, and why such large expenditures of money in fighting it if it actually fosters alcoholism? Why should not the anti-prohibition people spend their money to further the propaganda of the teetotallers? That would seem to be the logical course for them to pursue.

If it be true that the alcoholized nations are prosperous, strong and efficient, if alcohol gives us dominating brains and wide ranged accomplishments, and if its use enables certain lands to rule the waves and the industries and to control empires upon which the sun never sets, why then we must do all in our power to promote alcoholism, for drink, says the League, is a benefit to all people and to all nations. The only trouble with the League is that it is financing the wrong cause, for it is prohibition, according to its own statistics, that effectually prevents people from becoming teetotallers.

It strikes us that there is a flaw somewhere in the League's mental processes and that in its woodpile there lies concealed a colored person. With its passion for the suppression of "half-truths" and "twisted statistics" it ought to reconsider its program.

One thing is certain. The League must have retained a "publicity expert" of the type employed by the great Foundations, but it would seem that his great talents have heretofore been applied in other fields. The League's advertisements are cleverly written by a practised hand, but one whose owner is an amateur in the ethylic field. He is not yet earning his pay. We shall watch this "accelerator's" work with curious interest and look for improvement as his acquaintance with rum broadens. And may we be permitted also to suggest that he gauges the intelligence of the public at too low a point?

The League makes the point in its advertisements that prohibition has been a bad thing for West Virginia because it has not brought gold into the coffers of that State. It claims that the State is virtually bankrupt, and that on April 1st hundreds of school teachers had to sell their pay warrants or have them discounted at the bank at six per cent., while over 150 State employees received no salary for March. This state of affairs is said to be largely due to the loss of \$600,000 revenue a year from liquor taxation.

So everything is to stand condemned that does not pay. By the same token things that do pay are to be perpetuated. Alcoholism pays.

Perhaps liquor has heretofore supplied funds to the State that should have come from other sources. What sources? The answer is to be found in the recent report of the Federal Industrial Commission, otherwise known as the Walsh Commission. The Report urges "the enactment of an inheritance tax so graded that while making generous provision for the support of dependents and the education of minor children it shall leave no large accumulation of wealth to pass into hands which had no share in its production." The Report suggests that a limit of \$1,000,000 be fixed as the amount that shall pass to the heirs. It recommends that the revenue from this tax be reserved by the Federal Government for three principal purposes: The extension of education; the development of other important social services which should properly be performed by the nation . . . *development in co-operation with States and municipalities of great constructive works, such as road building, irrigation and reforestation, which would materially increase the efficiency and welfare of the entire nation.* Out of the colossal sums that would pass to the Government subsidies could be paid to the States under the terms of the clause we have cited, extended in scope when presented for Congressional action to cover State deficits due to loss of liquor revenues.

Let our swollen fortunes pay the cost of abolishing alcoholism. Isn't it about time that we dealt with both of these things with intelligence?

It behooves the medical profession above most other classes to keep wide awake upon this question, which is soon to become an acute issue, and to appraise properly the arguments of the fanatics on the one hand and of those whose economic interests are vested in the liquor trade on the other. With our scientific knowledge of the evil effects of even moderate drinking we should be easily able to nail specious and special pleadings.

The Economics of Medical Service.

It amuses us to see hospital people endeavoring to secure first-rate service from interns receiving no pay. It amuses us to hear a surgeon wondering why the assistant who has been assigned to examine discharged cases twice a week seldom turns up—an assistant receiving no pay. It amuses us to observe people wondering why histories are not properly written up and properly filed—by workers receiving no pay. It amuses us to note the perfunctory way in which many visiting men, particularly on the medical side, go through the motions of visiting and treating hospital patients—visiting men who receive no pay and who really can't afford to work for nothing. It amuses us to study the strange conduct of dispensaries by queer fellows who seem above the economic law of the land.

It amuses us to watch the whole ghastly farce, and then it saddens us too, and we wonder what would be the result if the workers were paid by the society which

needs their service—the result with respect to the workers and the result with respect to the sick poor.

Excessive Sun Bathing.

Various observers have sounded warnings anent the danger of excessive exposure to the direct rays of the sun. The anemic and nervously disposed city dwellers who are to be seen at the beaches in the summer season, particularly on Sundays and holidays, are said not to be benefited by this supposed helio-therapy. Meningitis has been reported by Roemer as resulting from such exposure.

In our own view gradual tanning could hardly result in harm, and after the acquisition of a good coat of tan considerable exposure could be indulged in with impunity and with benefit. We should except from this view those light-complexioned persons concerning whose vulnerability to the actinic rays the late Colonel Woodruff taught us so much.

The trouble with most of the city bathers is that their exposure is not frequent and slight, but infrequent and excessive, causing at the beginning of the season severe dermatitis, rise of temperature and malaise. There is a repetition of the dermatitis at irregular intervals until, perhaps, a fairly good coat of tan has been acquired. The dark-complexioned suffer but little inconvenience. Those without much pigment in the skin must often be seriously harmed by such ill-advised exposure.

The anemic neurasthenic often does great harm to himself in his efforts to improve his health. Probably one of the most harmful of the measures adopted by him is this very sun bathing, when practised in the manner and under the conditions that we have outlined.

The War's Losses.

Some of the figures published in Europe with respect to the losses on the various fronts are manifestly padded, and carry their own refutation, such as those recently reported to the French Senate. The statement of casualties which appeals most to our credence is that more or less officially published in the early part of August. This gives the total number killed on all sides at 2,228,300, wounded 4,837,510, prisoners and missing 1,705,000, the grand total being 8,770,810. Out of these totals the Teutonic Allies are said to have lost 868,000 killed, 1,653,000 wounded, and 462,000 prisoners and missing. Since these estimates do not emanate from the Teutons, they seem fairly credible.

The French Senate was asked to believe that 3,350,000 Teutons had been killed, 3,835,000 wounded, and 1,793,000 taken prisoners, or a grand total of casualties to the number of 9,030,000. The humorists who presented this report decided that 1,739,000 of the Allies' forces had been killed, 2,589,000 wounded, and 1,135,000 taken prisoners.

We wonder if the French people are simple enough to believe such figures. Are they given out with intent to deceive? It does not seem to us that such a policy will work out well in the long run.

It may be shown that small amounts of alcohol augment the frog's heart, and an augmentor effect, too, in the case of man has been described. Grützner thought the increased conductivity of the heart after a small dose was due to nerve stimulation. Some believe that the increased pulse-rate is not due to alcohol itself so much as to the situation in which it is drunk, atmospheric and exciting conditions exaggerating it.

Miscellany

CONDUCTED BY ARTHUR C. JACOBSON, M. D.

An Old Evil in a New Light.

The problem of prostitution is one of special interest to the medical profession chiefly because of its relation to the venereal diseases and to the morbidity and mortality entailed by them. It is a problem that will not be solved until social changes now in process of evolution are definitely crystallized. The nature of these changes we shall attempt to emphasize in this article. Direct dealing with the problem is visionary.

In ancient Greece, in the post-Homeric period, the curious social institution known as *paiderastia*, or boy-love, acquired a strong hold upon the Hellenes. Plato defined the highest form of human existence to be "philosophy together with *paiderastia*." Socrates described his philosophy as the science of erotics. In the *Charmides*, Socrates speaks of catching sight of what was inside the boy's (*Charmides*) garment, and remarks that he "took the flame." He goes on: "I thought how well Cydias understood the nature of love when, in speaking of fair youth, he warns someone 'not to bring the fawn in the sight of the lion to be devoured by him,' for I felt that I had been overcome by a sort of wild-beast appetite."

It is true that Plato ultimately came to modify his views and to frame an ascetic law of monastic rigor for the regulation of passion, but he never reached the point of view from which women are regarded as the proper objects of sexual love, and as the *fit companions of men in all relations of life*. The modern ideal of marriage and the conception of womanhood as worthy to be worshipped were alike unknown to him. Abstinence is the rule that he proposed to the world—continence except for the sole end of procreation.

Into the mouth of Pausanias, in the *Symposium*, Plato puts the following curious speeches: "In Athens to love and to be loved [by one of the same sex] is held to be a very honorable thing. . . . The love which is the offspring of the common Aphrodite is essentially common, . . . being such as the meaner sort of men feel, and is . . . of women . . . and of the body rather than the soul; the most foolish beings are the objects of this love. . . . The offspring of the heavenly Aphrodite . . . is from the male only; this is that love which is of youths. . . . Those who are inspired by this love turn to the male."

Æschines, in the *Areopagus*, in which court the case against Timarchus was tried, admits his partiality for beautiful young men. He says: "I do not attach any blame to love. I do not take away the character of handsome lads. I do not deny that I have often loved, and had many quarrels and jealousies in this matter. But I establish this as an irrefutable fact, that, while the love of beautiful and temperate youths does honor to humanity and indicates a generous temper, the buying of the person of a free boy for debauchery is a mark of insolence and ill-breeding. To be loved is an honor; to sell yourself is a disgrace." He bids the judges force intemperate lovers to abstain from free youths and satisfy their lusts upon the persons of foreigners and aliens. No serious moral shame attached to persons who used boys, provided that no mercenary and "profligate" motives operated. It was held honorable to love free boys with "decency"; the conduct of lovers between themselves, within the limits of recognized friendship, was not challenged.

Plato, through Pausanias, declares the love of boys ethically superior to that of women.

The vast Hellenic literature upon the subject of *paiderastia* is fully drawn upon by John Addington Symonds in his "A Problem in Greek Ethics," and we refer the interested reader to that work, a perusal of which will, we promise, astound those unfamiliar with this odd phase of human culture.

It might be said here, parenthetically, that *paiderastia* developed upon a martial basis, boys being withdrawn at a very early age from the influence of women and inured to hardship and comradeship with men. The Dorians appear to have been chiefly responsible for the practice. Nothing of effeminacy attached to *paiderastia* among the Greeks, except in its commercialized form. The greatest generals and statesmen of Hellas were boy-lovers. Their idealization of *paiderastia* must be definitely reckoned with in accounting for the heights which the Greeks reached as a nation. In the course of time *paiderastia* became Orientalized and "corrupted," and was a factor in the later decadence.

What was the status of the Greek women while *paiderastia* was flourishing? During the Homeric period their status would appear to have been very high—equal with that of the men. The advent of *paiderastia*, born of martial necessities, forced them far down in the social scale. To talk familiarly with free women on the deepest subjects, to treat them as intellectual companions, or to choose them as associates in undertakings of political moment, seems never to have entered the mind of an Athenian, says Symonds. Women did not frequent the *palæstra*, the theatre, the Agora, the Pnyx, the law-court, or the symposium, but it was in these places that the spiritual energies of the men expanded. At no time in the history of human society have women ever been so effectually thrust into the home. *Paiderastia* was a necessary consequence of the unequal social culture, and the women became merely the breeders of the race. Those who to-day believe that woman's place is in the home ought to know what a rigid application of that principle results in.

Later, in mediæval Europe, we find the home not regarded as the proper sphere for passion. Both *paiderastia* and chivalry ignored the family, while the latter even set the matrimonial tie at naught. It was the lady, rather than the mistress or the wife, who inspired the transports of the knights and poets. Sainted Beatrices and unattainable Lauras obsessed them. The woman of the home was in much the same position as she who had suffered through *paiderastia*. Dante used Gemma, and Petrarch a concubine, merely for breeding purposes.

The point which we wish to make is that in so far as we refuse women a place in the sun, both in and out of the home, in so far do we inevitably create social and sexual pathology. We must abjure the tendency to make woman a sexual defective in the home and a social defective outside of the home. Prostitution to-day, in short, is the analogue of *paiderastia* in ancient Greece. It is largely a pathological social reflex of our nasty puritanism on the one hand, and of our unequal social culture on the other.

The heart of mankind is sound at the core and man's perversities have been dictated chiefly by handicaps which our social evolution is bound to straighten out, rather than by natural cussedness. Somehow or other he will yet muddle along into happiness.

It was martial life which engrafted *paiderastia* upon the Grecian state, and its curse has not left us yet, as witness the European cockpit. Its relation to homosexuality, so prevalent in Germany, still holds good, not

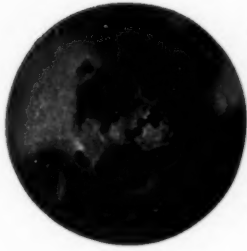
to speak of its other evils. Militarism is a great obstacle to a rational and balanced social adjustment such as we hope for. Is it not in Germany, centre of militarism, that woman is insistently relegated to the kitchen, the church and the kinder?

Prostitution will go when the home becomes what it ought to be—the object of a fervid enthusiasm in which love can find wholesome expression, and when our social housecleaning is advanced to the point of civilization, which means among other things sex equality—equality civic, cultural and erotic.

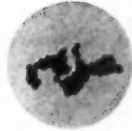
Syphilis.

H. F. Swift, New York, discusses the subject of the therapy of syphilis of the central nervous system, referring to the work of Ellis and himself, and reviews the work that has been done by others in treating the disease by subarachnoid injections. The objections to intraspinal therapy that have been raised within the last year are frankly stated. He admits that the use of neosalvarsan by this method has been followed by inconvenient and even dangerous sequelae, and that it should be used, if at all, with the greatest caution. While it is clear that the intravenous injections of salvarsan have been of great benefit, there are certain cases resistant to this method which yield when the intraspinal therapy is instituted. The literature is full of such instances. Although the technic is more difficult than that of the intravenous method, the difficulty is not insurmountable and only occasionally is it so painful as to render the treatment impossible. The inconvenient accidents are not frequent enough when salvarsan is used in this way to cause the method to be discarded. While the choroid plexus has been shown to be relatively impermeable for most inorganic substances, it has been shown that at least a small amount of salvarsan is often present and the objection that the serum is useless because of the low salvarsan content, seems invalid.

"Autosalvarsanized serum" alone has been followed by marked clinical improvement. Its action may be due to one of several factors. 1. The serum is spirocheticidal. 2. It may contain specific antibodies. 3. The local irritation may increase the permeability of the meninges. 4. The acute irritation it produces may have a beneficial effect on the chronic inflammatory process. 5. The normal serum may contain substances which, brought into contact with the syphilitic exudate, cause it to resolve. The spirocheticidal effect has been demonstrated by Swift and Ellis, and, although the syphilitic antibodies are not directly demonstrable, it is reasonable to suppose they exist. The acute local irritation has been shown not to increase the permeability for salvarsan which is circulating in the blood, but the beneficial effect of acute congestion on acute inflammatory processes is a well-known theory on which Bier's hyperemic treatment is founded. The improvement following the injections of normal serum in psoriasis and other skin diseases suggests that the fifth hypothetical factor may be correct, and on the whole the use of serum as a vehicle for spirocheticidal substances seems to have a rational basis. Not all patients with syphilis of the nervous system require intraspinal treatment. Many of them respond well to intravenous treatment, combined with mercury and iodid properly administered, but in other cases in which these means fail, the addition of intraspinal therapy is believed to be of value. The treatment, while systematic, should not be so rigid that individual indications should be disregarded. All the factors have to be considered to give a consistent and beneficial result.—(J. A. M. A.)



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(MENTION THIS JOURNAL)

The American Association of Clinical Research

JAMES KRAUSS, M. D., Permanent Secretary and Editor.

PROGRESS ALREADY MADE IN MEDICINE AND A FEW THINGS HOPED FOR.*

JEFFERSON D. GIBSON, M.D.

MEMBER OF DENVER COUNTY MEDICAL SOCIETY, COLORADO STATE
MEDICAL ASSOCIATION, AMERICAN ELECTRO-THERAPEUTIC
ASSOCIATION, AND AMERICAN ASSOCIATION OF
CLINICAL RESEARCH, ETC.

Denver, Col.

"The heavens declare the glory of God; and the firmament showeth His handiwork, day unto day uttereth speech and night unto night showeth knowledge." Thus sang a man many thousands of years ago with the inspiration of music in his heart, with the mental projections of mind and soul mounting so high in his ecstasy that they reached out unto God himself, leaving to the ages one of those rare pearls of prophetic truths, that please and gladden the plodding wayfarer on his journeys and researches for the everlasting and eternal truth. What would we do if we should be deprived forever of that great blue dome of heaven? The great blue background, you might say the great curtain, upon which God himself plays his films as of a great "photo-play" for the delight, wonder, admiration and even terror of his many children. Where in all nature do we find such beauties, endless changes, kaleidoscopic effects, marvelous imagery of grand and magnificent proportions as are played and staged free to the world, all mankind, on this great blue dome of the heavens, in the clouds, sunsets, rainbows, storm clouds, tornadoes, showers and sunshine?

Do we as physicians realize this? Do we realize that every time we send a patient out into the open, for fresh air, after being confined to his bed for days, and perhaps weeks, we are sending him out to see the greatest "photo-drama" the heart of man or the mind of God could conceive? Have we noted with sufficient care the brightened eyes, the pinker hue of the lips, the pleased expression of the face and you might say, the joy of the entire "Ensemble" of the patient as the attendant rolls him in again for rest, sleep and dreams of delighted phantasies, forms, palaces, cities and all kinds of caricatures planned by God Himself for His weary children. What is more restful and pleasing to the poor wan pinched face tubercular invalid, for instance, than to have his bed pulled up to a large window out on the porch where he can watch the great "photo-play" of the heavens? As he watches the great battles of the clouds, enjoying their victories and defeats, their grotesqueness or symmetry, he often forgets his cough or pleurisy and in the eagerness and delight of the surroundings, draws in deep inspirations of air, increasing hope and vigor and aiding in the final triumph over disease; where this is not to be it acts as a solace like a cradle to the weary child in which to rock the poor soul into a dreamless slumber from which when he awakes, there are many more things more beautiful than the cloud phantoms for his delight.

"Fresh air and sunshine" for most all invalids is a common prescription, heard from the lips of all physicians and I would not detract one whit from this advice, but for the poor chronic invalid, who lies in his bed all the weary hours of the day, with just a little sug-

gestion and thought cannot we increase his happiness by means of this great "photo-drama" of nature and manage so that, to the tired eyes and weary hearts, many of these phantoms may turn to nightingales in their dreams and charm their slumbers through the long hours of the nights with their sweet songs? I sometimes wonder how many poor tubercular invalids have been saved by the rolling chair, I have almost reached the conclusion that to every bed-ridden patient with tuberculosis a rolling chair should be an adjunct, or we might say, a necessity. The timidity of being rolled along the streets or park soon disappears, and the little ride every day break into the monotonous grind of the invalid; he sees, feels and inhales the inspiration of vigorous life all around him. He is thus enthused to new effort, new and more vigorous hope for life and health, which is a wonderful assistance to the physician in these slow and tedious cases.

"And the firmament showeth His handiwork." As physicians, are we to be content to look only and admire the great handiwork of our Creator? While the planets, constellations, milky-ways and pale moon furnish us a handiwork surpassing all imagination, which even after during many decades of years, catches us as if anew and enthralls us with its grandeur and its beauty, can we, as physicians, be satisfied with this? This handiwork of the Creator is so plain and open that even the nearsighted, blind, hottentot, ignorant sees and enjoys. To the man of healing, there are many "handiworks" that the Creator has left for him to develop, mysteries so intricate that alchemists of a thousand years are unable to solve, depths so deep that geologists are still guessing where they end, and distance so great that the astronomer has failed in his computations; on and on the great Infinity beckons in every line that His handiwork may be revealed and so we have added "Day unto day uttereth speech."

Beauty and appreciation by sight always comes before speech. What would be the use of our investigations into this great Infinity of Creation if there was no speech? Can the birds and insects, as they flit from flower to flower, tree to tree, record their thoughts or discoveries? No! Only to the master of created things "Man" is speech given and by this means he approaches nearer to God than anything else. Therefore, he can delve into the "handiworks" of his Creator as no other living object can. By speech we are enabled to argue, to discuss, criticise and investigate, and record the principles of mastering the great mysteries of "handiworks" of the Creator. Milton dreamed and a "Paradise Lost" was found; Newton thought much and well, and "Gravity" was recorded; Michael Angelo received an inspiration and the brush recorded the "Judgment;" Raphael prayed and the "Madonna" is a monument to his genius; Harvey reasoned deeply and by speech he excited the medical world and proved that blood and not air rushed at unheard of speed through the arteries; Jenner, by close observation and practical application of an idea, almost rid the world of its most dreaded scourge. Speech! Who can record its handiwork? Demosthenes, Cicero and many various celebrities throughout the ages have marked the advance of speech so that many millions of creatures have added "Gems of purest ray serene" to the world's composition that it is impossible to even think of them in a paper like this. But each and every one added to the world's storehouse

*President's address read before the American Association of Clinical Research at its Seventh Annual Session at Philadelphia, Pa., on September 22, 1915.

and unlocked new "handiworks" of his Creator so that it might be "Night unto night showeth knowledge."

Knowledge; what is knowledge? Knowledge is something learned, known by acquisition not by instinct. If we are wise, possess wisdom, we may acquire knowledge. Should the man of medicine, the man who is pictured with "healing in his wings" to whom the sufferer from disease or accident, turns his weary or frightened eyes, mutely begging for relief from pain, restoration of life in this world, surcease from misery hereafter, possess knowledge?

Is there a more contemptuous character in all literature than has often been portrayed in the wise, weasened and unscrupulous quack? He is sharp, full of wisdom when it comes to deceit and manipulations of his dupes, but lacking of all knowledge when it comes to scientific healing as an art. The wise can acquire knowledge and in all creation there lie the unexplored fields for those who hear the cry "Night unto night showeth knowledge." Knowledge! It makes the uncomely beautiful, the weak strong, the miserable happy, the poor rich, the impossible easy, and the sick well.

Has the medical profession heeded this great cry? Has the great cry that has come down through the many centuries of the past been caught up and echoed and re-echoed in the last few generations as it should have been? "Little by little the acorns grew," and so in this grand and glorious profession of ours, little by little it has acquired knowledge. Many times in the ages past it has been duped into the pitfalls and miry places of despondency, but true to its destiny it has emerged brighter for its difficulties, mounting higher and higher in definite attainments or perfections, substituting facts for fiction, eruditeness for shams, honesty for deception, enthroning knowledge over ignorance. When we come to consider a few, and only a few, of the phases of medicine and surgery in which knowledge has brought sunshine from darkness, we must not forget that as McDowell bound and strapped his patient to the old operating table for the first abdominal operation for the removal of an ovarian cyst, he opened up a new vista to the surgical world. J. Marion Syms, after many failures and much thought discovered the silver wire suture; lacerated perineums were repaired. Lister discovered that wounds healed more readily when cleansed with water containing certain chemicals, and antiseptics were given to the world. Koch, Pasteur, and many of their followers have delved deeply into the very fountain, as it were, of diseases with the microscope and brought forth cocci, bacilli and germs galore for our edification and service, so that today surgery knows no bounds, all kinds of abdominal, thoracic and visceral operations are performed that only a few years ago, would have caused a professor of surgery to stand aghast.

There is a condition, a loathsome one, which many think was brought into Europe by the returning pilgrims of the Crusade Wars. When we read the pages of terrible and almost helpless disaster, which followed its stride over the then civilized world, we stand abashed. True, the medical profession was not able to cope with the new and untried monsters. What was done? The medical profession persevered and while incantations, voodoo, burnt offerings, incense were resorted to by the laity and quacks, the medical profession searched diligently for new remedies. Finally, mercury and the iodides were sifted from the chaos of empiricism and a definite step in practical achievements was obtained. Lately, much has been added to this by accurate means of diagnosis as we find in the Wasserman and Noguchi reactions making it possible to be certain in your diag-

nosis. The Luetin test of Noguchi has been much simplified in the last year, making it very cheap as well as efficient so that doubt and darkness should be eliminated from the whole subject. Salvarsan and neosalvarsan, discovered by Ehrlich, have been used by many with marked success and are considered by many one of the late world achievements in scientific medicine.

Lange's colloidal gold test in nervous syphilis is highly praised.

Diphtheria, only a few years ago the horror of the mothers of every clime, has almost been placed among the minor ailments of childhood by the wonderful success of antitoxin.

Malaria, the pest that was supposed to walk in darkness but a better knowledge of which has proven it lurks in the beak of the mosquito, very willing to dispossess himself of his unappreciated company. For ages men died of this ague, fever and pain, until the discovery of quinine. This action of quinine in chronic cases may be much accelerated and intensified by using the x-rays at the same time, or half an hour after giving the quinine by the mouth, a large dose of x-rays over the spleen, properly through a filter.

Cancer. That great scourge of the day. Shall I say we have found the great specific for this malady? I wish I could, but the possibilities of curing individual cases is of much more importance than simply the declaration of a specific. I am glad to say much has been accomplished in late years in this most dreaded malady. Much has been written on the subject of pre-cancerous conditions during the last twelve months. In other words, recognize and treat the condition, not waiting for absolute certainty in diagnosis before waging war on the suspected malady. Without going into the subject on vaccines, serums, salves, paste and many remedies, we will come to the main standbys in these cases. Surgical removal, cutting wide of disease, seems to be used today most generally. Some advocate large doses of x-ray as pre-operative treatment. Others urge operation in all cases and this should be followed by heavy doses of x-ray. There are others who claim that operation is all that is needed in the great majority of cases, and others still who believe that any cancer that can be cured by operation only, can be better cured more positively and certainly by x-ray or radium only. I believe that consensus of opinion bears me out in the claim that it is the opinion of the few of the most competent operators in America today to insist that all of their cases shall be treated by x-ray after the operation, and statistics will bear us out in the assertion that this is the proper way.

Doyen's method of dessication can certainly be used to advantage in some cases and the fulguration method of De Keating Hart has proved interesting and given splendid results in many desperate cases. The three great agents that stand out prominently in the treatment of cancer today is surgical removal, x-rays and radium.

Uterine fibroids. This subject has become so interesting in the line of radio-therapeutics that it bids fair soon to be classed with the non-surgical diseases. I reported the case of a very large uterine fibroid treated with the roentgen ray in 1902. It was larger and causing more compression and trouble than produced by pregnancy at full term, since then G. E. Pfahler of Philadelphia wrote the first paper published, I believe, on this subject in this country and has really written more on the subject than any one else in America. More has been written on the subject from Hamburg and Freiburg, Germany, than elsewhere. Kroenig and Gauss of Freiburg, Germany, have treated most cases and reported such wonderful results that it has elicited

great interest from the medical profession everywhere.

No paper along the line of achievements in medicine would be complete without the mention of the tuberculosis problem. While tuberculin and various vaccines, also serums, are being used probably more than ever in the treatment of this disease, the results of their combination with the climatic, dietetic, medicinal and hygienic management of pulmonary tuberculosis, have improved the vital statistics considerably over that of former years.

Much work has been done along the line of immunization and there is much hope in this direction. What has been said of cancer, as to early diagnosis, applies in the same way to tuberculosis, especially to tuberculosis of the lungs. The physician of today who sits by and watches a case of pulmonary tuberculosis until it develops so far that the microscope can be used to confirm his diagnosis, should realize that he is wasting valuable time. It has been demonstrated by many hundreds of roentgenograms that the great majority, nearly eighty per cent. of all pulmonary tuberculosis, developed in the bronchial glands, near the hilus or root of the lungs, and can be demonstrated beautifully in roentgenograms long before the bacilli appear in the sputum; these findings and activity can almost always be proven by the reaction from the "Moro" test. The ointment should be applied well and thoroughly rubbed in and even the amount of infection can be pretty well judged from the violence of the reaction.

In early or incipient glandular thoracic cases, by using these agents in support of physical examinations, tuberculosis can be substantiated long before the appearance of the bacilli in the sputum. This being the case, why should it be allowed to go on to a well developed case? Has it not been absolutely demonstrated beyond the shadow of a doubt that roentgen rays will cure glandular tuberculosis? Has not this been plainly proven in cervical tubercular adenitis, also not so commonly known but well proven, also in effect on tubercular glands of the abdomen in *Tabes Mesenterica*. If it will cure or relieve these glands, why will it not do the same in these bronchial glands when properly applied and thus abort pulmonary tuberculosis? Do you grasp the significance of this assertion? Do you realize that if this thought is followed out, in ten years death from pulmonary tuberculosis could be almost eliminated from the vital statistics. I think I can state positively, without fear of contradiction, that in nearly a thousand cases of pulmonary tuberculosis, treated and dismissed in the last twelve years, not a single one of this class of cases has died. These cases are especially suited for the use of tuberculin or vaccines in conjunction with the roentgen ray, etc., and with the general dietetic, medicinal and hygienic management should add certainty to the prognosis after diagnosis. Of all therapeutic means so far developed in the treatment of tuberculosis, x-ray I consider the "Magnum Bonum." It is something worth while, not only in incipient cases but in the advanced cavity cases, in the hopeless milliary cases in all of which it is frequently able to snatch victory from defeat.

Radium and its emanations are before us today in a more tangible form than ever before. This Will-o-the-Wisp substance, that has disrupted many ideas and theories, has taken its place in the front rank of mysterious agents. When we hear one discussing the power and value of its emanations, which gas is so infinitesimally small, yet capable of producing such wonderful results, makes one almost think of spooks, spirits or hoodoo worship. Yet a water without taste or odor can

be made to play with the electroscope in a very definite way.

Radium itself has even interested our great government and under government supervision it is being extracted from ores in Denver at the present time in a very satisfactory way.

Knowledge! Has it been sought diligently? Yea! Much has been accomplished, but when we think of the vast fields yet to conquer, the great infinity of the unknown, we should not become faint-hearted, but with determination and perseverance let us press on until infinity itself shall be spread out before us as a great scroll for the inspection of men.

MEDICAL INSPECTION OF INDOOR WORKERS AND SCHOOL CHILDREN.*

ROGER M. GRISWOLD, M.D.

Kensington, Conn.

The old spirit of irresponsibility on the part of the employer for the physical welfare of his employees is rapidly being replaced by a feeling of responsibility, and by an increased recognition of the fact that methods whose aim is the better co-operation between the various social units looking to the better conservation of human life and health are to be commended and encouraged.

There has also rapidly come to the front the recognition, both by corporations and by legislative bodies, that the welfare of the community is dependent on the welfare and physical fitness of the individual units.

We have been slowly remodeling our former idea that industrial prosperity depended upon the greatest money value produced from the greatest amount of finished product, and have gradually come to recognize the fact that increased productivity must be coincident with the physical efficiency of the worker and with the length of his working life.

It requires no argument, and history has abundantly shown that prosperity, based on working conditions which impaired the physical fitness of the worker, in the last analysis, has always resulted to the great detriment of the public, and to the prosperity of the occasional individual.

Every worker represents two forms of investment, viz., his brain, hands, eyes, feet, nerves and muscles, with which he may work for himself, and which may be classed in his assets of capital as his common stock, and the same tools which he may rent to another for a daily wage, and which may be classed as his preferred stock. In both instances it should be remembered that his entire capital is available only if his physical condition is maintained at a certain degree of efficiency.

Every worker begins his working life under a debt to society, a debt which has become larger from year to year because of the increased time and pains and skill required to increase his greater safety in his work, and his greater efficiency during the time when he works. The time has passed when the "cheapest thing in the world is human life."

The only way this debt can be repaid is by increasing his years of productive work and by a continued condition of physical efficiency which can only be brought about by safeguarding him from preventable accidents, and by a continued promotion of his health. If we have not given the matter attention, few of us have any realization of the enormous losses caused every year by the ill health of workers and by accidents.

In one small factory under my observation, employing but one hundred hands, and working under very

*Read at the Seventh Annual Meeting of the American Association of Clinical Research, September 23-25, 1915, at Philadelphia, Pa.

good sanitary conditions, the total number of working days lost for the year, on account of sickness alone, was more than eight hundred.

This is considerably less than the average loss per hundred workers the country over, which Dr. Frankel of the Metropolitan Life Insurance Company estimates as nine hundred and ten days for every one hundred workers. Dr. William Gilman Thompson and others estimate the amount lost by preventable sickness and accidents at more than three-quarters of a billion dollars.

My own studies lead me to believe this to be a very conservative estimate and that the loss considerably exceeds this amount. Expressed in a way which may bring its importance home to us, if the time lost on account of preventable sickness and accidents could be converted into cash, and applied to the payment of the Federal expenses, we could do away with all taxes except that upon imports. As a great part of this loss is preventable, it is evident that any attempt to better the physical condition of workers, and any attempt to control preventable disability, is not a matter of philanthropy, but a simple matter of good business, and it is natural, therefore, that medical supervision, not only of shop and factory workers but of the whole community, should be receiving increased attention—and especially is this true of the medical inspection of school children, which is showing wonderful results in all those communities where it is in operation.

My chief reason for calling this matter to your attention is that you may appreciate the practical application which may be made of the vast amount of useful data which would soon be at the command of the medical profession if a systematic supervision of this kind were established.

We are rapidly coming to a realization of the great value of medical supervision of the community, rather than of the isolated individual and the application of means of prevention, rather than of cure, and it has been this wide spread campaign for the safety of the individual worker that has demonstrated the expediency of the same kind of supervision in a form modified to suit conditions to all classes, rich and poor, factory or out-of-door worker, rural or urban, and especially children.

Recognizing this fact, large industrial plants which began voluntarily to study conditions with the original intention of reducing accidents are now extending the work to the prevention of disease, and communities are recognizing the fact that it is our duty, even if considered from a selfish and economic point of view, to minimize the effects of ignorance and carelessness as factors in accidents and disease.

Of course, a certain amount of hazard will always be connected with certain industrial occupations, and accidents will never be entirely eliminated, and so also a certain amount of disease will always prevail as the result of hereditary tendencies, telluric and atmospheric conditions and so forth, and all these factors will never be entirely eliminated, but efficient medical supervision will greatly minimize their detrimental influences.

To get the best results from such supervision it should be constant and supplemented by a periodic physical examination. It seems to me there can be no doubt that such supervision and regular physical examination must be the best possible means for maintaining the individual in a continuous condition of efficiency, and for maintaining the health rate of a community at a high figure. Some of the desirable results to be accomplished by medical supervision would be:

The prevention and control of contagious and pre-

ventable diseases among workers; the regulation of many kinds of work suitable to the physical condition; the detection of diseases and defects in the early stages; the prevention of occupational diseases, or their early detection; and a careful record of all cases under observation for future reference.

It is not within the scope of such a paper as this to go into the details of this work, except to say that wherever undertaken it should be thorough, and there should be adopted a standard form of physical examination so that the data obtained can be tabulated, and conclusions correctly formed.

I am sorry to say that the great present hindrance to all such work as this comes from the people most to be benefited.

There seems to be an antagonistic mental attitude in a large part of every community to the idea of any kind of supervision which shall even advise them as to the conduct of their daily lives. In nearly every state of the Union bills were introduced at the last legislative sessions asking the enactment in some form of laws for medical supervision, and in every instance these bills met with most strenuous opposition.

The hearings before the various committees were crowded with people, some of whom were apparently of ordinary intelligence but most of whom bore the earmarks of ignorance, bigotry, fanaticism or greed. Representatives of labor unions, Christian scientists, so-called naturopaths, chiropractics, clairvoyant healers, and devotees of numerous cults and isms, with an assurance and presumption born of ignorance and fostered by greed, and with unlimited denunciations of the professions of medicine and surgery, demanded the right to regulate their own ways of living, to supervise their own health, and decide when and in what physical condition their children should be allowed in school, to decide for themselves whether a chronic cough was due to a laryngitis following a so-called "cold" or whether it was an incipient phthisis, and generally to live and work in such ways and under such conditions as they pleased, without reference as to how those conditions affected the rest of the community.

These demands were made under the plea of "personal liberty," and with an insistence that every man had a right to have what physician he pleased, or no physician at all if he pleased, and that the community or the state had no right to enforce medical supervision, or physical examination on them or their children.

It is because of the very existence of this class of people in every community, together with the great influx of an ignorant foreign population, that makes the creation of efficient boards on medical supervision a necessity in every community, city and state.

If such supervision is at all desirable or needful it should be thorough and complete.

The importance of thorough physical examinations cannot be too strongly emphasized.

The data collected from hasty and superficial examinations would be of no value, and incipient conditions of disease cannot be detected by such methods.

Indoor workers, and school children especially, found to be suffering from physical defects or disease, should not only be requested, but required to report at stated intervals for observation and re-examination.

It is evident that a system of medical supervision such as indicated would involve large expenses, and the question naturally arises, "would it pay?"

From every point of view, moral, spiritual, financial and physical, I am sure it would.

The evidence in all large plants where it is in operation is to this effect.

In every instance it has resulted in greatly increased efficiency of the working force, in greater comfort and content of the workers, a better understanding between employer and employee, and in greatly lessened loss of time from preventable disease.

In the case of school children it has markedly raised the standard of scholarship, prevented to a large degree the spread of contagious and infectious diseases, and greatly lessened the absences from school on account of sickness among the children.

With the continued study of occupational diseases by this Federal Public Health Service, and the good work being done by the various local and state boards, it is not unreasonable to suppose that in time we shall reach a point where the present economic losses caused in industrial occupations by preventable accidents and disease, and the great loss of time among school children, will be very largely eliminated.

Absorption of Drugs.

J. D. Pilcher, Omaha (*Journal A. M. A.*, July 17, 1915), has followed up the investigation previously reported by him in the *Journal A. M. A.* on the absorption of drugs by the nasal submucosa of dogs. In the former paper he reported the finding that the absorption of epinephrin injected in the submucosa was usually very rapid, and in the present report he gives the results with a number of other drugs: alkaloids, potassium iodid, nitroglycerin, etc., and finds that these are in general also rapidly absorbed. A few were rather slowly absorbed, but this he thinks depends, in all probability, not so much on the nature of the drug as on the experimental difficulties in injecting the medicine. Dogs were employed under morphin-ether anesthesia, and the drugs were injected into the submucosa of the anterior turbinal or septum. The quantity was usually from about 0.5 to 1 c.c. The anatomic structure of the parts probably influenced the variations observed in some cases. Most of these drugs markedly affected the blood pressure and this was generally taken as an indication of the absorption, the carotid pressure being used. The presence of the drug in the urine indicated the absorption in the case of potassium iodid and methylene blue. The drugs are discussed singly. They are histamin, tyramin, veratrum viride, nitrites, chloroform and strophanthus, potassium iodid and methylene blue. The absorption at different levels of blood pressure took place equally well whether the pressure was low or high. The experiments show that the submucosa of the nasal septum and turbinals is a very good absorbing surface for a variety of substances, on account of the great vascularity of the parts. The possible clinical dangers were also discussed in the previous article. It is conceivable that, in susceptible individuals at least, dangerously large quantities of epinephrin and cocaine may be introduced into the turbinals or septum in operations on those parts. Stimulant drugs, however, notably epinephrin, could perhaps be introduced with advantage in case of collapse in which the need is urgent. The technic is simple and the size of dose easily controlled, but less accurate than with the intravenous method, which would be more desirable ordinarily. The conclusion deduced from both investigations is that this method is effective in case of many drugs, especially when they are introduced under pressure.

Certain cases of syphilis of the lung and syphilis of the glands have been recorded in illustration of the confusion with cases of tuberculosis.

Correspondence

Vivisection and the Sense of Humor.

To the Editor of THE MEDICAL TIMES:

In the September issue of THE MEDICAL TIMES (New York) the editor scoffs at the Anti-Vivisection Society, its adherents and its journal (*The Open Door*), with its clean-cut literature, remarking that "most of the vivisection material is the stale and familiar variety interlarded with sentimentalism," and he charges them with being "opposed to medicine root and branch." He states that "an anti-vivisectionist with a sense of humor has never yet been discovered." We might ask if a fondness for vivisection indicates a sense of humor or humaneness? He concludes his curious editorial with the query, "Does anyone know a laboratory cat which challenges greater commiseration than the wife of an anti-vivisectionist?" What a pitiful situation, indeed—a good woman wedded to a man endowed with no sense of humor, who would not take delight in skinning a cat or slitting a puppy or kitten into shoe-strings alive, or crushing the spine of a living monkey! Verily such a wife could obtain a divorce without going to Reno—if the judge and jury were all vivisectionists!

CHARLES E. PAGE, M. D.

Boston, September 2, 1915.

Paronychia.

Isadore Seff and S. Berkowitz, New York, describe a technic for operating an paronychia which they have used in a series of 300 cases and which not only relieves the pain but also shortens the disease and prevents disfigurement. Acute and chronic cases are treated alike. The finger is first placed flat on the table and with the eye part of the probe held at right angles to the finger nail, the cuticle is very slowly pushed backward along its entire extent until the proximal portion of the nail appears. In some cases soaking the finger in hot boric acid solution facilitates this step. It is important to push backward against the cuticle and not downward against the nail, as in the acute cases the latter procedure is always painful. The probe is hooked under the diseased nail at the proximal portion, the edge of the nail is cut longitudinally for a distance of one-eighth inch and each side of the cut edge is grasped with either forceps or an artery clamp and the nail is cut transversely, the corners being completely removed. Pain is seldom produced, as the inflammation has separated the proximal portion of the nail from its bed. Attempts to remove more than this separated portion of the nail are very painful and the distal portion is left untouched to protect the underlying nail bed and is later forced off by the new growing nail. A wet dressing of boric acid solution is applied and the patient instructed to bathe the finger if it becomes painful in hot boric acid solution every three or four hours. An analysis of the cases is given. The *Staphylococcus pyogenes* was the predominant infection. Eighty-five per cent. of the patients had no pain during the entire operation, fifteen per cent. had only a little discomfort. No anesthesia, local or general, was required in any case and dressings were removed in from ten to fourteen days.—(*Jour. A. M. A.*)

A large number of cases of chronic catarrhal deafness owe their origin to neglected or imperfectly treated adenoids in childhood. Often too little attention is paid to adenoid extensions in Rosenmüller's fossæ or to after-treatment of the nasal cavities.

How the Wounded European Soldiers are Transported

Photographs from JANET M. CUMMINGS.



Fig. I.—Wounded Turks, captured by the British in the terrific fighting around the Dardanelles, are being removed to a field hospital by a detachment of the sanitary troops of the New Zealand contingent. The colonials have done the best work for England in the Gallipoli peninsula.



Fig. III.—This German ambulance car is being prepared for the reception of wounded in Poland. The springs of the beds are movable so that patients can recline in a sitting posture. The German ambulance train service stands at the head of all those of the warring nations.



Fig. II.—This French ambulance car, transformed from a freight car, has performed yeoman service as a traveling first aid station. Minor dressings are applied while the ambulance train is en route. The French have made wonderful improvement in caring for their wounded soldiers since the early days of the war.



Fig. IV.—Every Austro-German ambulance train carries a fully equipped apothecary shop. It is also a chemical, bacteriological and pathological laboratory, so that the army surgeons have every diagnostic aid constantly at hand. This is only one example of Teutonic thoroughness and efficiency.

Surgery

Military Surgery.

W. E. Drennen, Birmingham, Ala., reports observations made during a service at the American Ambulance Hospital in Paris during the latter part of 1914 and the early part of 1915. The point of view is that of a surgeon at a large base hospital. He first mentions the better mental attitude of soldiers than is seen in civilians suffering from similar injuries. The soldiers were also uniformly well nourished and healthy in appearance, showing that they had been well fed, which goes far toward minimizing shock. The modern sharp-pointed steel-jacketed military bullet is, despite claims to the contrary, far from being a humane missile. The point of entrance may be a small slit or round wound, but the point of exit is often quite large and ugly. It is no exaggeration to say that the modern sharp-pointed bullets are all potentially dumdums, and as a rule turn sideways in the wound on account of the center of gravity being situated far back, and the least deflection of the point after striking makes the ball turn sideways, and possesses a wobbling motion, or even rotate on the transverse axis.

Modern field artillery consists for the most part of

3-inch field guns and 6-inch howitzers, and the wounds are from the fragments of the shell and the shrapnel. The iron envelop of the shrapnel shell is shattered into thousands of pieces and the wounds are often severe and lacerated, and carry more clothes than dirt into the wound. The region of distribution of injuries shows a greater number of wounds of the extremities and the head. The mortality is greatest with those perforating the spine and abdomen, and next to these, the head. Wounds of the extremities give a comparatively small mortality, the same in both the upper and lower. The battle injuries are estimated as follows: killed, 20 per cent.; non-transportable, 8 per cent.; requiring transportation, 32 per cent.; slightly wounded and able to walk, 40 per cent. At the base hospital there were no fresh gunshot wounds of the abdomen to be seen. Occasionally a patient with an abscess or other complications was sent in for operation. Acute appendicitis was fairly common. At no time did Drennen see a bayonet wound. The main routine was, first, a roentgenoscope examination to be used as guides for future operations, many of which were simply dressings under ether. Irrigation with normal salt solution was much used, but he personally prefers a 5 per cent. solution of benzoate of soda. The main point in the treatment of the wound consisted in establishing free drainage.

The great complications most feared in military surgery are tetanus and gas gangrene. Cultures were teeming with microbes, and it is safe to say that more than 95 per cent. of the wounds suppurred. The war is a dirty war in more ways than one. One point especially noticed in this war, he believes, for the first time, is that infection by tetanus bacilli is apt to recur when operative procedure is carried out on an old wound previously the site of a tetanic infection. A patient may become a tetanus carrier differing from a typhoid carrier in that he is only dangerous to himself. The other serious complication was gas gangrene, which, contrary to moist gangrene, begins at the edges of the wound. Dr. Jablons demonstrated to Drennen a phenomenon first observed by himself, namely, the presence of very small subperitoneal blebs, mostly on the intestines, but also beneath the parietal peritoneal membranes, making their appearance from four to five hours after death. The treatment of gas gangrene has not been found, and the last word on this subject is far from being said. Points in regard to joint injuries, compound fractures, which are practically all infected, and the necessity of drainage are given in detail.

In operating on compound infected fracture, it is important, Drennen says: "1. To make large incisions; it is usually best to make the incision so that it will be dependent. 2. To remove all foreign bodies. 3. To remove all loose or detached pieces of bone. The fingers form a good guide to go by. All pieces that can be removed by the fingers without undue effort should be taken away. 4. To maintain drainage: this is best done by the insertion of large fenestrated rubber tubes. 5. To use absolutely no foreign material of any kind in the wound, such as wire, chromatic gut or bone plates; the use of these means nothing but trouble. 6. As to the question of amputation, the tendency is rightfully more and more toward conservatism. Under favorable conditions, it is marvelous what Nature will do in the repair of broken and infected bones. It is now possible to save limbs and restore them as useful members, whereas formerly it would have been entirely correct to amputate. If the economic status of the patient is not to be considered, the question of amputations becomes more and more identical with the question of the limb's viability. With the recent additions to our knowledge in the realms of bone grafting and transplanting, many wonderful results are being obtained." The important points in the after-treatment of compound infected fractures are the maintenance of drainage and extension. In conclusion, Drennen speaks of the amount of plastic surgery that will be required in after years. All Europe, he says, will be one great laboratory for such constructive surgery, and he who can will do well to avail himself of the opportunity.—(*Jour. A. M. A.*, July 24.)

Arthritis of the Joints of the Hand Following Colles' Fracture.

P. le Breton calls attention to a condition, not described in the literature, which sometimes follows Colles' fracture or other traumatic lesions of the upper extremity. From three to six weeks after the fracture, about the time for the removal of the splints, an inflammation of the joints of the hand and wrist sets in, accompanied by œdema, severe pain, and loss of motion. The inflammation increases gradually and comes to a climax in two to four weeks, then slowly subsides, leaving the hand weak, painful, and stiff. Later there is a marked atrophy of the tissues and the patient is unable to flex the fingers to the palm.

Of the 10 cases seen by the author, 4 recovered, 2 are convalescing, 3 were permanently crippled, and 1 died of cardiac complications. The patients were mostly females, over 40 years old, and most of them had some arteriosclerosis. The condition was not due to tight bandages, to improper reduction, or to ineffective treatment in any way. It seemed to be a traumatic arthritis of late development. The treatment advised was rest, baking, gentle massage, and passive motion.—(*Surg. Gyn. & Ob.*, XX. 1915.)

Surgery of the Skull.

R. R. Kahle, Columbus, Ohio, gives an account of the use of an autogenous rib graft in repairing a fractured skull. After referring to a few reported cases representative of the autogenous procedures hitherto reported in medical literature, the case history follows. A young man, aged 23, with good health and heredity, while walking under a derrick, was struck by a falling object, which inflicted a scalp injury and fractured the left parietal bone. Necrosis occurred from infection and prevented healing. When seen the patient had a skull defect, 1 inch by 1½ inches left by the necrosis, and suffered from continuous and violent headache and mental symptoms threatening permanent insanity. The cranial opening was filled in with tough fibrous tissue which did not pulsate, and pressure on the scar aggravated the headache. Roentgenoscopy verified the supposition of intracranial encroachment at the site of the lesion. The patient was anxious for relief, but the use of a metal plate was decidedly objected to.

The most favorable bone furnishing a curved surface with periosteum on both sides and thus suitable for autogenous transplantation seemed to be the rib. The entire scalp was thoroughly shaved with a sterile razor. The large U-shaped scalp flap was lifted and the dense fibrous scar, filling the defect, carefully dissected away. The rough edges of the skull, which dipped in places, were evened and freshened. Periosteal flaps as large as the sections of the outer table to be removed were turned back at both ends of the skull gap. A small hand-driven saw, properly filed and set to cut well, was used to outline the sections of the outer table, which were chiseled away on the bevel to form the skull side of the lap joints. A sufficiently long piece of the right sixth rib with periosteum was now removed and with calipers, saw and chisel was framed to fit the skull. For immediate nourishment an elliptical opening was made through the outer plate of the transplant. It was pressed to position, the periosteal flaps replaced over the ends, the scalp flap dropped and reunited with silkworm-gut sutures. No deep sutures were used and the gauze dressing was fixed in position by a wide strip of adhesive to prevent any possible dislodgment of the transplant. Healing was by first intention throughout, and convalescence was uneventful. The patient left the hospital at the end of four weeks, returning at intervals for roentgenoscopy. By this method pictures were obtained, showing that the transplanted rib acts as a scaffold for the formation of new bone, which closely resembles the original skull. A marginal gap of one-eighth to one-fourth inch is filled in by extension of the skull and the inner plate of rib with periosteum intact sharply limits the deposit of new bone. Cranial continuity was restored completely at the end of six months.

The advantages of the method, as given by Kahle, are in the unique suitability of the curved rib. The beveled lap joint provides a large area of end-to-end approximation, confers stability, and renders unneces-

sary the use of buried sutures. The under surface of the rib with periosteum is admirably adapted for brain contact, and if necessary twin transplants could be used for a wide defect. Now, after fourteen months, systematic relief and cranial restoration are complete.—(*J. A. M. A.*, July 17.)

Cancer of the Breast.

Russell Howard's operation for cancer of the breast is: removal of an area of skin the centre of which is the tumour, and which always includes the nipple; the subcutaneous tissue from the middle of the sternum to the latissimus dorsi and from the clavicle to well on to the abdomen; the breast; the pectoralis major and minor and their fasciæ (the clavicular head of pectoralis major is frequently saved, pectoralis minor is always removed); the whole of the fat and fascia in the axilla; the fascia over the serratus magnus and the subscapularis. The operation is commenced in the axilla, the insertion of the pectorals being divided, and the axillary vein and artery being carefully cleaned and all their branches tied except the circumflex vessels.

All the fat and fascia with the glands in the axilla are removed in one piece, and it is not until this is done that the breast is touched. The actual removal of the breast and pectorals is now a matter of a few minutes, the only bleeding of any importance coming from the perforating branches of the internal mammary artery, which come through close to the sternum. All hemorrhage is then stopped, and the wound closed; if the incisions have been carefully planned, there is never any difficulty in bringing the edges of the skin together. A small drainage tube is placed in the axilla for 48 hours. The entire operation takes from $\frac{3}{4}$ hour to $1\frac{1}{4}$ hours, the time depending on the fatness of the patient.

The arm is bandaged at right angles to the side, and supported on a pillow until the drainage tube is removed, after this the patient is encouraged to move the arm. The stitches are removed on the eighth day, and the patient usually leaves the hospital under a fortnight. His mortality for 100 cases is 3. One patient had a goitre, and did not recover consciousness. The second, an elderly lady, died quite suddenly after the stitches were removed, and was found on post-mortem examination to have extreme fatty degeneration of the heart. The third was a woman of 42, who died suddenly of pulmonary embolism, while having tea with her friends on the seventh day after the operation.

The majority of Howard's cases have been the wives of working men, and in no case has the loss of the pectorals been more than a trifling inconvenience. All say they can do their house work as well as before the operation. There is slight limitation of movement of the arm upward due to contraction of the scar. Some patients complain of slight pain on the inner side of the upper arm, due to involvement of the internal cutaneous nerve in scar tissue, but the pain is never serious. A few cases have slight œdema chiefly of the back of the hand, and at the back of the elbow.—(*The Practitioner*, May, 1915.)

The youth of a patient should not be allowed to allay a suspicion of cancer. Cancer occurs in the breast of very young virgins; it is by no means unknown in the rectum of young subjects.—*American Journal of Surgery*.

The classical symptoms of stone in the bladder are increased frequency of micturition, pain on urination, nicturia, and sudden stoppage of the flow of urine.

The Physician's Library

Habits that Handicap. By Charles B. Towns, Proprietor of the Charles B. Towns Hospital, 292-293 Central Park West, New York City, N. Y., for the treatment of alcoholic and drug habitues.

No one can be better fitted to place such a treatise before the public than Mr. Towns, who is, in a measure, responsible for the present legislative campaign against the wholesale distribution of habit-forming drugs heretofore considered almost harmless by druggists and consumers, which, however, insidiously undermine the health, progress and prosperity of the individual, and the community at large, by whom a habit is formed from which the victim can not easily, and perhaps never, be released. He justly claims that the physician is almost invariably to blame for the development of this drug-using curse, due to his ignorance of the length to which he can safely go in the administration of narcotics.

We should say that all points of importance, i. e., causes, warning against the danger, help and hope for the afflicted, treatment and cure of these unfortunates, are covered herein. Mr. Towns faces a terrific problem, and handles the subject manfully, truthfully, bravely, yea, and despite all that he knows of it—hopefully as well.

Included also is an appendix on "The Relation of Alcohol to Disease," by Alexander Lambert, M.D., visiting physician to Bellevue Hospital, professor of clinical medicine, Cornell University, and author of "Hope for the Victims of Narcotics."

The concise manner in which Dr. Lambert presents this subject proves his familiarity with, and ability to successfully treat sufferers coming under his observation and care. It is fascinating reading.

No one especially interested in these subjects, among the profession or laity, should be without a copy of this beautifully written and printed volume. It is bound in cloth, contains 262 pages and the price is \$1.20; postage 10c. additional. Published by the Century Company, New York City.

Simplified Infant Feeding. By Roger H. Dennett, M. D., of the New York Post-Graduate Medical School. Cloth. 355 pages. Illustrated, \$3.00 net. Philadelphia: J. B. Lippincott Co., 1915.

The feature of this book is the synopsis of text which occupies the first 21 pages and is a skeleton of the contents. The idea is original and taking, as it enables one to hurriedly glance over the subject matter of each topic, with the opportunity of reading the full text at a later time.

Dennett has covered infant feeding from alpha to omega. It would be difficult to discern any important matter which he has not gone into with sufficient detail. The 75 illustrative cases take up the various conditions which arise in every day practice. The book at once commends itself to the reader as a common sense work and it certainly appeals to the practical man as "just what he has been looking for."

Diseases of the Digestive Organs. With Special Reference to their Diagnosis and Treatment. By Charles D. Aaron, Sc.D., M. D., Professor of Gastroenterology in the Detroit College of Medicine and Surgery. Cloth. 790 pages. Illustrated with 154 engravings, 48 roentgenograms and 8 colored plates. \$6.00, net. Philadelphia: Lea & Febiger, 1915.

Recognizing the tendency to isolate the consideration of diseases of the digestive organs from the great body

(Continued on page 20.)

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(Continued from p. 342)

of internal medicine, Aaron points out the direct and vitally important connection and interdependence of the functions of the digestive tract and of the other organs, and between gastro-enterology and all branches of internal medicine.

The diagnosis and treatment of digestive diseases are clearly set forth, beginning with oral diseases and proceeding on through the gastro-intestinal tract.

Recent progress in the study of internal secretions; the various tests and reactions; improved methods in the examination of feces; test meal technique and findings; dietetics; mineral-water therapy; hydrotherapy; mechano-therapeutic agencies; oral sepsis as a predominating factor in the etiology of obscure gastro-intestinal disorders; duodenal feeding, and the functions of the liver and pancreas in metabolism receive most enlightening consideration from a distinctly advanced viewpoint.

Special attention is afforded the physiology of digestion; methods of examination; the significance of findings, and the technique of various treatments.

A Manual of Diseases of Infants and Children. By John Rührhah, M. D., Professor of Diseases of Children. College of Physicians and Surgeons, Baltimore, Md. Fourth Edition, Thoroughly Revised. 12mo volume of 552 pages, 175 illustrations. Cloth, \$2.50 net. Philadelphia and London: W. B. Saunders Company, 1915.

The third edition of this book was reviewed in these columns only a little over a year ago. The necessity of another edition gave the author an opportunity of bringing the book up to date. The particular new feature is the description of the Binet-Simon mentality test for children.

The way each disease is presented is especially good. Definition, etiology, pathology, symptoms, diagnosis, prognosis and treatment give the reader a good idea of the subject and enable him to read larger works more intelligently.

Diarrheal, Inflammatory, Obstructive and Parasitic Diseases of the Gastro-Intestinal Tract. By Samuel G. Gant, M. D., LL. D., Professor of Diseases of the Colon, Sigmoid Flexure, Rectum, and Anus at the New York Post-Graduate Medical School and Hospital. Octavo of 604 pages, 181 illustrations. Cloth \$6.00 net; half Morocco, \$7.50 net. Philadelphia and London W. B. Saunders Company, 1915.

Any book from this master of proctology is welcome, and the present volume is quite the equal of anything he has heretofore attempted. It is unusual in that it contains 52 chapters for a few over 600 pages, but as the short chapters deal with separate entities, the arrangement is to be commended.

One forgets there may be a diarrhea from so many causes until this book is studied. Among the etiologic causes are disturbed metabolism, thyroidism, gout, Bright's disease, old age, diabetes, tuberculosis, syphilis, ametic and bacillary dysentery, intestinal worms, protozoa and many others. Gant upsets the usual procedure by making diarrhea his subject and building up the story of the cause and effect around it, recognizing that diarrhea is merely a symptom of some disease.

The book is well illustrated and splendidly printed.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by H. A. Hare, M. D., Assisted by L. F. Appleman, M. D. Volume 2, June, 1915. Philadelphia: Lea & Febiger, 1915.

As is customary the reviews in this number of Progressive Medicine are exhaustive. They include Her-

nia, by William B. Coley of Cornell University; Surgery of the Abdomen, Exclusive of Hernia, by John C. A. Gerster of the New York Polyclinic Hospital; Gynecology, by John G. Clark of the University of Pennsylvania; Diseases of the Blood, Diathetic and Metabolic Diseases, Diseases of the Thyroid Gland, Spleen, Nutrition and the Lymphatic System by Alfred Stengel, the University of Pennsylvania; and Ophthalmology, by Edward Jackson of the University of Colorado.

Applied Immunology. By B. A. Thomas, M. D., Professor of Genito-Urinary Surg., and R. H. Ivy, M. D., Instructor in Genito-Urinary Surgery in the Philadelphia Polyclinic, Cloth 359 pages. Illustrated, \$4.00 net. Philadelphia: J. B. Lippincott Co. 1915.

The authors have crystallized and detailed the practical phases of serum and bacterin application in medicine and have omitted the experimental research, presenting only such theories as will enable the reader to thoroughly comprehend biological prophylaxis, diagnosis and therapy. They have carried out their ideas with commendable exactness. They have reduced an abstruse subject to the understanding of the physician who studied medicine before biology and bacteriology played such an important part in medical diagnosis. The subject is thoroughly and interestingly covered. Not the least valuable section is the appendix, which discusses the serum treatment of hemorrhage, organotherapy and chemotherapy, in application to salvarsan and neosalvarsan.

Materia Medica and Therapeutics. A Text Book for Nurses. By Linette A. Parker, B. Sc., R. N., Instructor in Nursing and Health, Teachers College, Columbia University. Cloth, 311 pages, illustrated with 29 engravings and 3 plates. \$1.75 net. Philadelphia and New York: Lea & Febiger, 1915.

The author has discriminatingly weighed the knowledge of materia medica and therapeutics requisite to the highest efficiency in the nurse, and has planned her work to embody this. Her aim has been to give the nurse that grasp of the subject which will enable her to handle and administer drugs with intelligence. Only essential facts are presented. The nurse learns from this volume not only that certain drugs are administered in certain conditions, but the reasons for their selection. The consideration of drugs is logically arranged by systems—nervous, muscular, circulatory, etc.—with an additional section devoted to specifics and drugs which affect nutrition. A concise chapter on legislation concerning poisons and habit-forming drugs includes consideration of the Harrison law, indicates just which drugs are restricted and how to conform to the law.

The illustrations are a striking feature.

Foreign Body in the Lung.

G. L. Richards, Fall River, Mass., reports the case of a young man who has had, since 1910, occasional chills followed by fever, though apparently otherwise healthy except for occasional attacks of pain. He had a very slight cough and some trouble in the right lung was suspected. Nothing abnormal had been discovered by a fluoroscopic examination. The blood count showed a steady leukocytosis above normal but no definite physical signs of lung disease. A thorough roentgenoscopy showed a tack in the right bronchus which the patient could not remember ever having inspired, and it is probable that it had been there for many years. It was largely eroded and covered with oxidation products. It was removed by bronchoscopy and the patient was relieved of further trouble.—(*Jour. A. M. A.*)